Saskatchewan
Parks and
Renewable
Resources

Wildlife
Branch

Saskatchewan Game Management

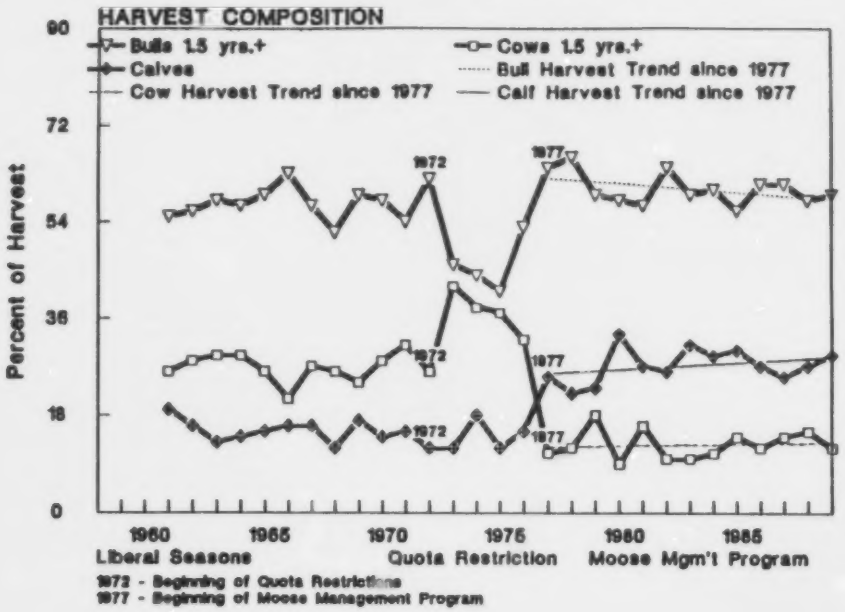
1989-90

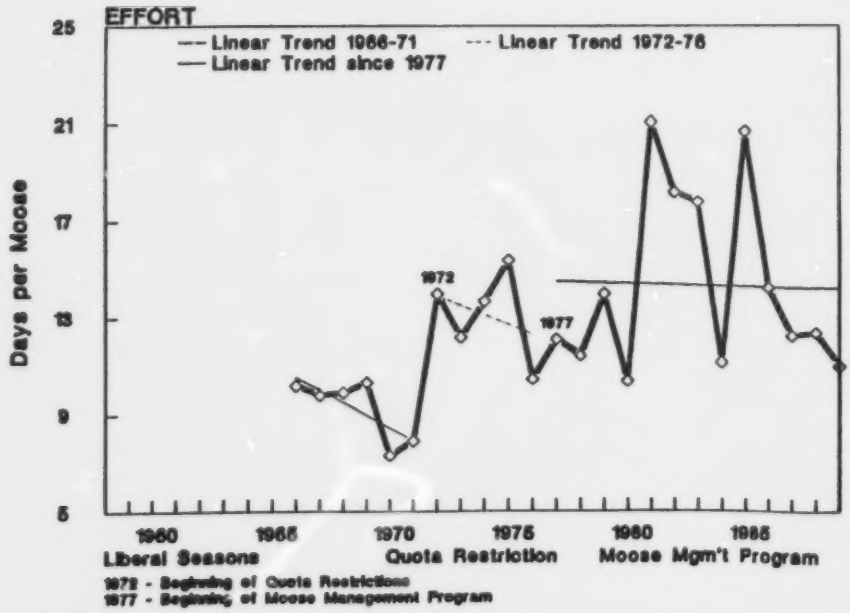
93-02670/

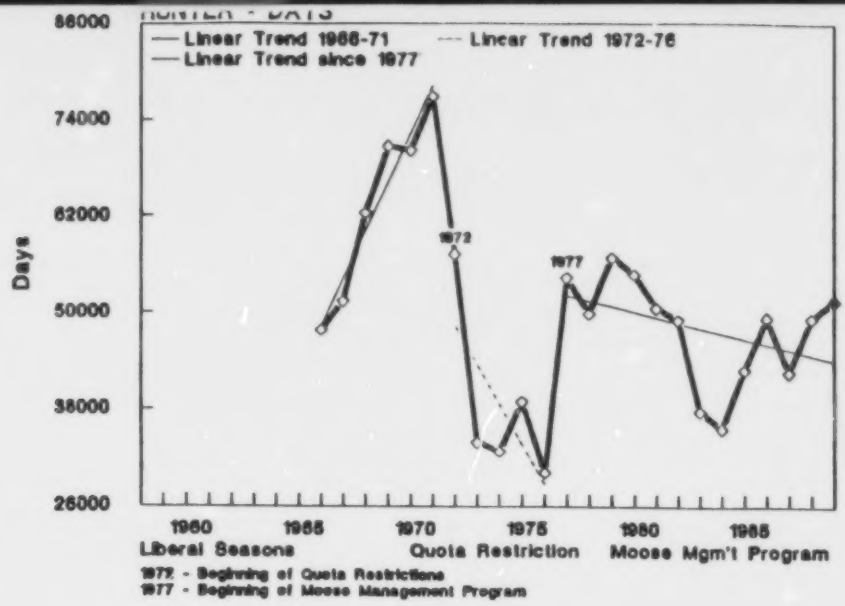
Errata

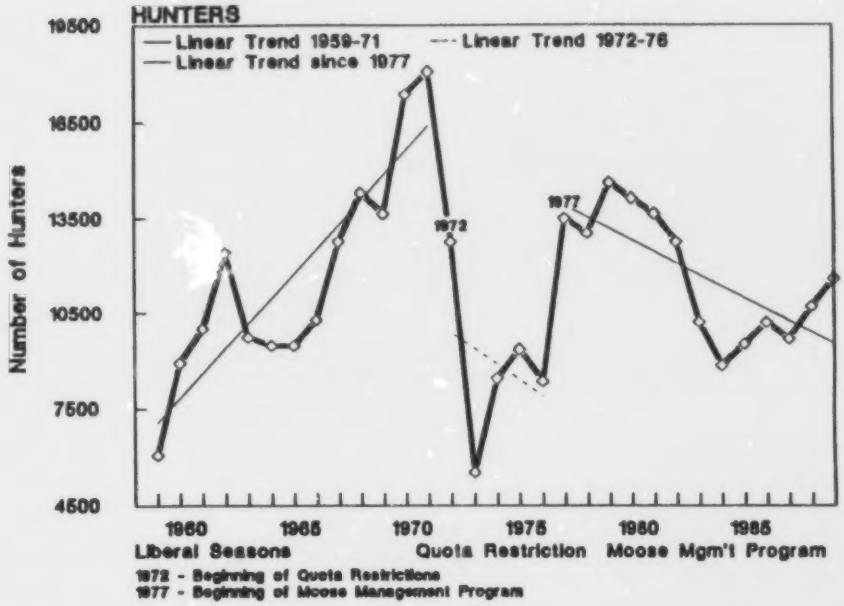
Subsequent to publication of the Saskatchewan Game Management; 1989-90 report, errors and omissions were detected in a few of the tables and figures. The following corrected tables and figures replace those that are found in the main body of this report:

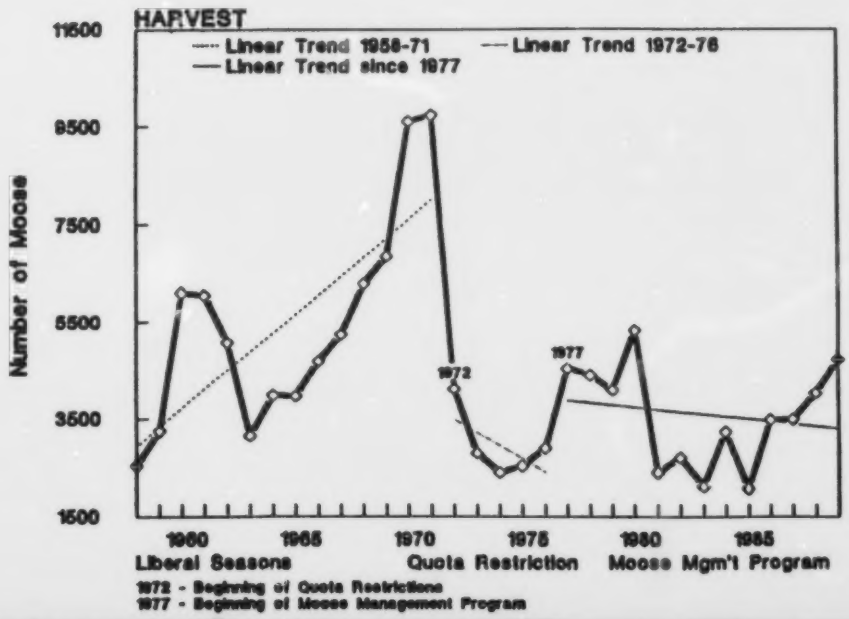
1. **1989-90 Moose Pages 40 and 41:** Figure 9. Estimated provincial hunter success and harvest pressure during the moose season, 1959-89.






HUNTER - DAYS
Linear Trend 1966-71
Linear Trend 1972-76
Linear Trend since 1977
Days
86000
74000
62000
50000
38000
26000
1972
1977
1960
1965
1970
1975
1980
1985
Liberal Seasons
Quota Restriction
Moose Mgm't Program
1972 - Beginning of Quota Restrictions
1977 - Beginning of Moose Management Program


HUNTERS
Linear Trend 1959-71
Linear Trend 1972-76
Linear Trend since 1977
Number of Hunters
19500
16500
13500
10500
7500
4500
1972
1977
1960
1965
1970
1975
1980
1985
Liberal Seasons
Quota Restriction
Moose Mgm't Program
1972 - Beginning of Quota Restrictions
1977 - Beginning of Moose Management Program

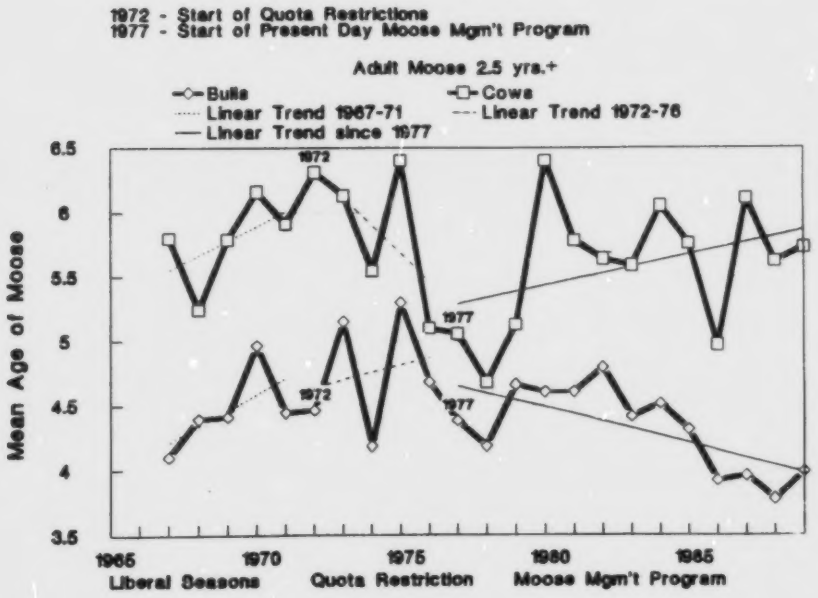

HARVEST
Linear Trend 1958-71
Linear Trend 1972-76
Linear Trend since 1977
Number of Moose
11500
9500
7500
5500
3500
1500
1972
1977
1960
1965
1970
1975
1980
1985
Liberal Seasons
Quota Restriction
Moose Mgm't Program
1972 - Beginning of Quota Restrictions
1977 - Beginning of Moose Management Program

2. **1989-90 Moose Page 43:** Table 37. Sex and age composition of the 1989 Saskatchewan moose harvest as calculated from tooth samples.

	Age Class																	
Female	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5[a]	unk[b]	Total
Frequency	144	49	39	20	17	8	8	6	9	6	6	6	2	2	1	1	17	341
Percent	12.3	4.2	3.3	1.7	1.5	0.7	0.7	0.5	0.8	0.5	0.5	0.5	0.2	0.2	0.1	0.1	1.5	29.2
Row Pct[c].	42.2	14.4	11.4	5.9	4.9	2.4	2.4	1.8	2.6	1.8	1.8	1.8	0.6	0.6	0.3	0.3	4.9	
Col. Pct.	52.8	18.4	17.9	14.8	22.9	20.5	27.6	66.7	56.3	50.0	60.0	60.0	40.0	100.0	100.0	100.0	25.8	
Male	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	unk	Total
Frequency	129	218	179	115	57	31	21	3	7	6	4	4	3	0	0	0	49	826
Percent	11.1	18.7	15.3	9.9	4.9	2.7	1.8	0.3	0.6	0.5	0.3	0.3	0.3	0.0	0.0	0.0	4.2	70.8
Row Pct.	15.6	26.4	21.7	13.9	6.9	3.8	2.5	0.4	0.9	0.7	0.5	0.5	0.4	0.0	0.0	0.0	5.9	
Col. Pct.	47.3	81.7	82.1	85.2	77.0	79.5	72.4	33.3	43.8	50.0	40.0	40.0	60.0	0.0	0.0	0.0	74.2	
Total																		
Frequency[d]	273	267	218	135	74	39	29	9	16	12	10	10	5	2	1	1	66	1167
Percent	23.4	22.9	18.7	11.6	6.3	3.3	2.5	0.8	1.4	1.0	0.9	0.9	0.4	0.2	0.1	0.1	5.7	100.0

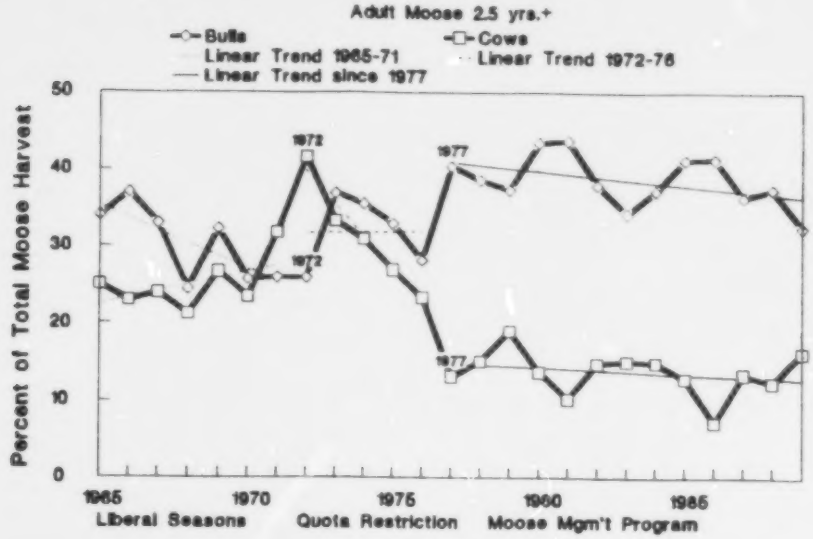
[a]Age class 15.5 contains animals 15.5 years and older.
[b]The unk age class represents animals of unknown age.
[c]Pct. - Percent
[d]Includes unknown sex.

3. **1989-90 Moose Page 44:** Figure 10. Sex and age composition of the provincial moose harvest based on check station samples, 1965-89.



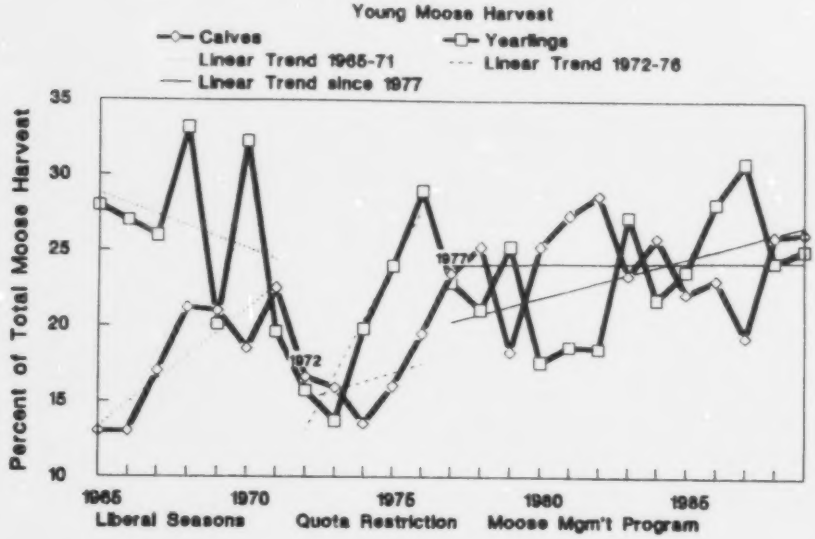
1972 - Start of Quota Restrictions
1977 - Start of Present Day Moose Mgm't Program

Adult Moose 2.5 yrs.+

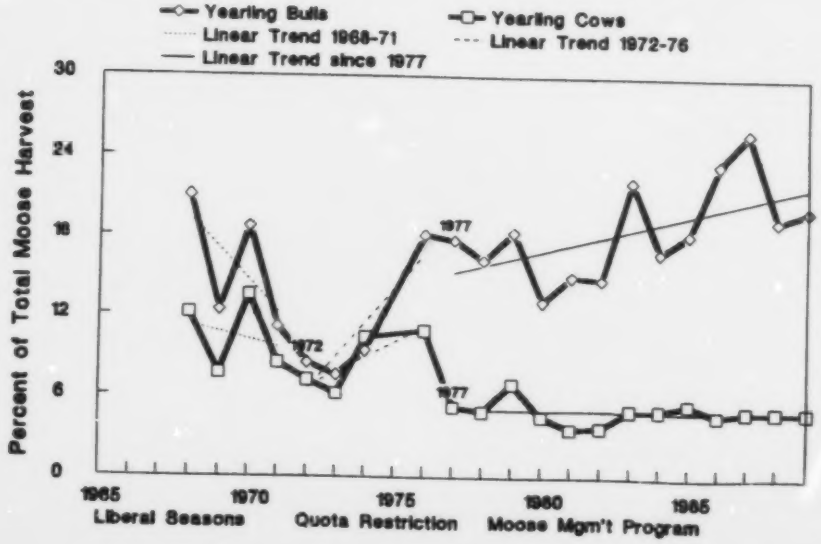


1972 - Start of Quota Restrictions
1977 - Start of Present Day Moose Mgm't Program

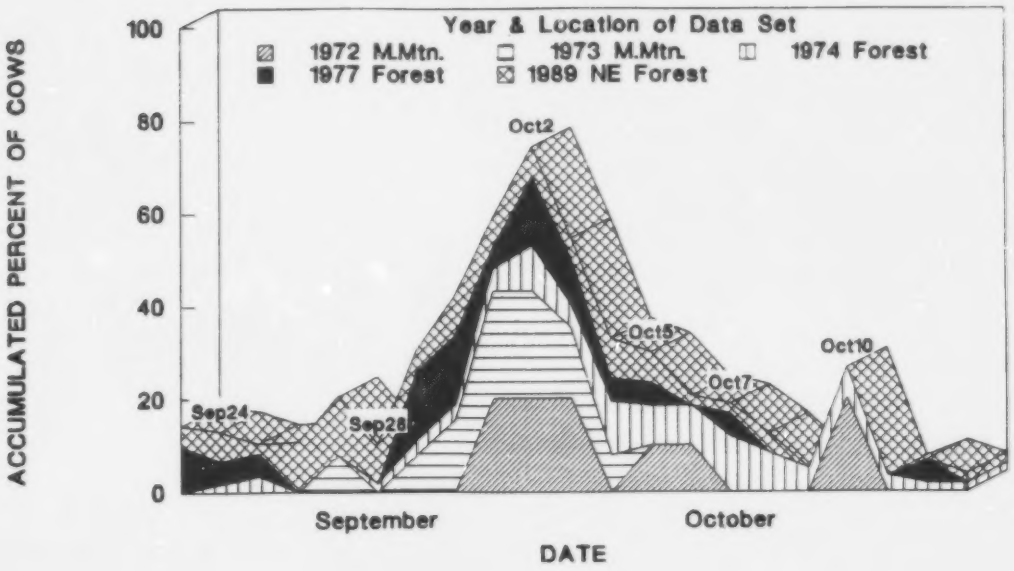
Young Moose Harvest



1972 - Start of Quota Restrictions
1977 - Start of Present Day Moose Mgm't Program



4. **1989-90 Moose Page 52:** Figure 15. Moose conception dates from different years and locations in Saskatchewan.



5. **1989-90 Mule Deer Page 69**: Table 56. Mule deer licence quotas for rifle seasons, 1986-90.

WMZ	Either sex					Antlerless				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
1	100	250	400	400	400	75	250	300	300	400
2	1,000[a]	900[a]	700[a]	750[a]	750[a]	1,000[a]	200	200	400	600
3	300	150	50	50	50	75	0	0	0	50
4	100	150	150	150	150	150	150	150	150	150
5	300	200	200	200	200	200	0	100	200	500
6	400	300	250	250	250	500[a]	200	100	200	800
7	300	150	150	150	200	200	200	0	0	100
8	50	50	50	50	50	50	100	0	0	100
9	500[a]	500[a]	400[a]	500[a]	500[a]	500[a]	100	100	400	600
10	800[a]	800[a]	700[a]	700[a]	700[a]	1,200[a]	600	1,000	2,000[a]	1,000[a]
11	50	50	50	50	50	100	100	100	400[a]	600[a,b]
12	150[a]	100	100	150[a]	150[a]	300[a]	200	0	200	200
13	400[a]	600[a]	400[a]	400[a]	400[a]	800[a]	800	0	0	600
14	600[a]	800[a]	600[a]	600[a]	600[a]	500[a]	0	0	0	600
18	0	0	50	50	50	0	0	0	0	0
19	200	250	300	300	300	150	250	200	200	250
21 & 41	0	0	0	0	50	0	0	0	0	0
22	0	0	0	0	75	0	0	0	0	0
23	250	250	250	250	250	0	250	0	0	0
24	250	250	150	150	150	0	0	0	0	0
25	200	150	150	200	200	0	0	0	0	0
26	250	200	150	150	150	0	0	0	0	0
27	250	150	100	100	100	0	0	0	0	0
29	150	150	150	150	150	0	0	0	0	0
30	150	150	150	150	150	0	0	0	0	0
44	0	0	0	50	50	0	0	0	0	0
45	100	100	100	100	100	0	0	0	0	0
46	150	200	250	250	250	0	0	0	75	75
47	150	200	250	250	50	0	0	0	0	0
Total	7,000	6,850	6,000	6,400	6,525	5,800	2,600	2,250	5,025	6,625

[a]Split into two-three day seasons.
[b]300 licences (two tags each).

6. **1989-90 Mule Deer Page 69**: Table 57. Mule deer licence quotas for primitive weapons seasons, 1986-90.

WMZ	Archery			Muzzleloading		
	Season	1989	1990	Season	1989	1990
1[a]	Either sex	850	850	Either sex	200	300
	Antlerless	100	100	Antlerless	100	100
9	Either sex	100	100	Either sex	50	100
	Antlerless	50	50	Antlerless	50	50
10	Either sex	100	100	Either sex	100	100
	Antlerless	50	50	Antlerless	50	50
11	Antlerless	0	100[b]	Antlerless	0	100[b]
12	Either sex	25	25	Either sex	25	25
Totals	Either sex	1,075	1,075	Either sex	375	525
	Antlerless	200	300	Antlerless	200	300
		1,275	1,375		575	825

[a]Represents combined WMZ 1 to 8, 13, 14, 15, 17 (new for 1990), 18 to 27, 29 to 31, 33 (new for 1990), 41 (new for 1990), 44 to 47.
[b]50 licences (two tags each).

7. **1989-90 Elk Page 74:** Table 60. Estimated hunter success and harvest pressure during the draw either sex seasons, 1989.

WMZ	Quota	Active Hunters	Harvest	Per cent Success	Harvest Structure Bull:Cow:Calf	Hunter Days	Hunter Days/Kill
6	50	50	25	50.0	7.00:1:1.00	225	9.0
	(50)[a]	(50)	(30)	(60.0)	(8.67:1:0.33)	—	—
7	200	198	18	9.1	1.50:1:0.00	969	53.8
		(200)	(20)	(10.0)	(1.57:1:0.29)	—	—
33	100	100	56	56.0	0.78:1:0.22	372	6.6
	(102)	(97)	(58)	(59.8)	(0.28:1:0.18)	(359)	(6.2)
50[b]	100	101	54	53.5	1.50:1:0.50	590	10.9
48[c]	600	599	254	42.4	0.51:1:0.41	2,530	10.0
54	50	50	24	48.0	0.20:1:0.20	229	9.5
58	50	46	8	17.4	0.00:1:0.00	215	26.9
59	50	52	26	50.0	0.67:1:0.00	197	7.6
63	50	50	0	00.0	—	175	—
Total	1,250	1,246	465	37.3	0.69:1:0.33	5,502	11.8
		(1,245)	(474)	(38.1)	(0.64:1:0.30)	(5,489)	(11.6)

[a] Results of telephone survey in parenthesis.
[b] Includes portion of WMZ 43.
[c] Includes WMZs 43, 49, 56 and 57 combined.

8. **1989-90 Pronghorn Antelope Page 92:** Table 73. Antelope licence quotas for years 1987-90.

WMZ	Year 1990	1989	1988	1987
Rifle/Muzzleloader				
1	200	100	100	50
2 & 5 combined	1,300	1,100	1,100	850
3	1,100	900	750	650
4	200	75	75	50
6	250	150	100	75
7	400	325	325	250
8 & 11 combined	500	350	275	200
9	800	675	600	500
10	600	400	300	175
12 & 13 combined	400	300	300	225
14	500	300	300	225
19 & 23 combined	150	100	100	75
24[a]	—	75	75	50
25[a]	—	75	75	50
26[a]	—	75	75	50
27[a]	—	—	—	—
Total	6,400	5,000	4,550	3,625
Archery	450	400	300	300
Provincial Total	6,850	5,400	4,850	3,925

[a] Combined with WMZ 14 in 1990.

Saskatchewan
Game Management
1989-1990

Compiled by
Department of Natural Resources
Wildlife Branch
Wildlife Population Management Section
3211 Albert Street
Regina, Saskatchewan
S4S 5W6

July 1992

ACKNOWLEDGEMENTS

The Saskatchewan Game Management Report is produced annually by the Population Management Section of the Wildlife Branch. In 1990 it was co-authored by Marlon Killaby, Marvin Hlady, John Mulhern, Rhys Beaulieu, Dave Brewster, Dwight Dobson, Terry Rock, Randy Seguin, Tim Trottier and Chris Dunn. Marlon Killaby and Marvin Hlady acted as senior editors while Mary Ann Zipchian and Brenda Lee Theriault co-ordinated the creation of the preliminary text. Special appreciation is extended to Betty M^cIntosh, Natalie Tretiak, Correen Nagy and Jacqueline Ambler for their effort in organizing and typing of draft texts and the final manuscript.

Many other members of the Wildlife Branch, along with the staff of Management Services Branch, made large contributions in its production. Fred Beek, Ray Longmuir, Hugh Hunt and Regional Wildlife staff assisted in data collection, analysis and advice.

The Department of Natural Resources (DNR) is indebted to the hunters of Saskatchewan for providing hunting information through venues such as the Big Game and Game Bird Hunter Questionnaire surveys, and hunter check stations, all of which form the foundation of this report.

Special thanks is extended to Dr. Hamilton Greenwood, staff and students of the Saskatchewan Institute of Applied Science and Technology (SIAST), Woodland Campus for their participation in DNR sponsored projects such as the moose tick study.

The significant contribution of DNR Operations staff to game management in Saskatchewan is also recognized. They collect many of the biological samples used to determine the age and sex compositions of kills, and are instrumental in conducting population surveys. The conservation officer frequently serves as our "eyes and ears", reporting qualitative information pertinent to wildlife.

EXECUTIVE SUMMARY

Big Game

Licences and Revenue

Licence sales totalled 89,152 licences which represented a 3 per cent increase from 1988 (Table 1). Mule deer, pronghorn antelope and white-tailed deer sales rose by 19, 16 and 12 per cent, respectively. A small 2 per cent decline was noted in elk while black bear and barren-ground caribou fell 25 and 15 per cent, respectively. Moose licence sales remained relatively constant at approximately 11,700. Big game licence revenue, as shown in Table 2, rose by 2 per cent ($87,180.00) in response to more liberal quota allocations in the Big Game Draw and the forecast for excellent regular season hunting opportunities in the fall of 1989.

Table 1. Estimates of hunting licence sales and game harvests, 1987-89.

	Licence Sales[a]				Harvest			
	1987	1988	1989	% Change	1987	1988	1989	% Change
Wildlife Habitat Certificate	74,504	72,751	68,821	-5%				
Big Game								
White-tailed Deer	47,105	51,758	50,705	-2%	29,399	35,910	39,998	+11%
Moose	11,046	11,652	11,306	-3%	3,487	4,014	4,706	+17%
Mule Deer	10,063	9,623	11,449	+19%	8,058	7,668	9,547	+25%
Antelope	3,713	4,640	5,391	+16%	2,950	3,705	4,407	+19%
Elk	3,486	4,006	3,864	-4%	814	788	974	+24%
Black Bear[b]	7,703	5,145	3,866	-25%	2,045	1,893	1,080	-43%
Barren-ground Caribou[c]	61	34	38	+12%	48	0	13	0%
Big Game Total	83,177	86,858	86,619	<1%	46,492	53,978	60,725	+12%
Game Birds								
Saskatchewan Resident	35,190	32,077	28,779	-8%				
Canadian Resident	2,029	1,648	1,595	-3%				
Non-resident	3,895	3,031	3,241	+8%				
Ducks[d]					201,519	104,777	104,132	-1%
Geese[d]					174,324	122,959	155,958	-27%
Sandhill Crane[d]					4,522	4,991	2,318	-54%
Sharp-tailed Grouse					78,210	51,786	48,502[e]	-6%
Hungarian Partridge					103,903	78,621	65,014[e]	-17%
Ruffed Grouse					89,322	87,065	70,781[e]	-19%
Spruce Grouse					14,213	15,332	10,297[e]	-33%
Pheasant					16,439	11,160	10,378[e]	-7%
Ptarmigan					330	153	301[e]	+97%
Game Bird Total	41,114	36,756	33,615	-9%	682,782	476,844	467,681	-2%
Provincial Licence Sales	198,795	196,365	189,055	-4%				

[a]Licence sale figures as of March 16, 1990.
[b]Harvests corrected to account for higher non-resident hunter success rates.
[c]Includes traditional barren-ground caribou use licences.
[d]Harvest estimate based on Canadian Wildlife Service statistics.
[e]Due to program errors in the Game Bird Hunter Questionnaire, harvest statistics may be questionable.

Table 2. Gross revenue from licence sales, 1987-89.

	1987	1988	1989	% Change	Dollar
Wildlife Habitat Certificate	745,040	727,510	707,100	-3%	-20,410
Big Game	2,570,090	3,064,045	3,174,715	+4%	+110,670
Game Bird	842,850	706,270	703,190	<1%	-3,080
Provincial Game Licence Revenue	$4,157,980	$4,497,825	$4,585,005	+2%	$+87,180

REVENUE BY SPECIES, 1989

Game Birds	691,640
White-tailed Deer	1,750,030
Moose	445,200
Mule Deer	400,715
Antelope	188,685
Elk	141,220
Black Bear	135,700
Barren-ground Caribou	760
Total	$3,062,310

The 1989 Big Game Draw

A significant change in the 1989 draw format occurred with the season setting process and the actual draw being implemented approximately six weeks earlier than in previous years. This was in response to hunter requests wishing to book holiday time well in advance of hunting seasons. Although applications were up 23 per cent from 1988, not all licences were allocated (Table 3). In the rifle seasons, 1,604 antlerless mule deer licences remained unclaimed while archers left four moose, 25 either-sex mule deer, 144 antlerless mule deer and 56 antelope licences. Muzzleloaders did not claim 57 antlerless mule deer licences.

Thirty-three per cent (33%) of the eligible Super A pool applicants for the special elk seasons were successful in obtaining a licence (Table 3). These applicants had a one in 2.9 chance of being drawn, identical to 1987 and 1988. For the first time in recent history, applicants from A pool (22) were successful in being drawn. Unlike elk, high proportions of applicants in lower pools for the other big game species did receive licences. Most noteworthy was that 90 and 50 per cent of the Pool B and C applicants for antelope were successful while 68 and 74 per cent of the Pool B and C applicants for antlerless mule deer also received licences. Recently, the either-sex mule deer season has gathered the greatest number of applications (14,788 in 1989) compared to any other big game species.

White-tailed Deer

With good hunting conditions and higher hunter participation, the white-tailed deer harvest increased 11 per cent from 35,910 deer in 1988 to 39,998 in 1989, similar to harvest levels experienced during the early 1980s. The Parkland ecozone supports the highest deer densities in the province and consequently, accounted for the highest proportion of the harvest. Harvests in the Parkland, Farmland and Forest ecozones increased in response to growing deer numbers but the Farmland harvest remains well below average because of depressed population levels. The Grasslands and Forest Fringe declined somewhat by 6 and 3 per cent, respectively.

Table 3. Licence allocations, eligible and successful applicants by priority pool, and possible Super A Pool applicants in 1990 for the 1989 special seasons.

Season	Species	Licences Available (Issued)	Super A Applicants	Successful Super A Applicants	Pool A Applicants	Successful Pool A Applicants	Pool B Applicants	Successful Pool B Applicants	Pool C Applicants	Successful Pool C Applicants	Total Eligible Applicants
Rifle	Elk	1,250 (1,260)	3,702	1,238 (33%)*	4,265	22 (1%)	738	0	481	0	9,186 (14%)
	Moose	1,875 (1,883)	1,417	925 (65%)	3,656	958 (26%)	1,029	0	845	0	6,947 (27%)
	Mule Deer	6,400 (6,428)	648	648 (100%)	6,703	5,069 (76%)	4,383	622 (14%)	3,054	89 (3%)	14,788 (43%)
	Antlerless Mule Deer	5,025 (3,424)	39	31 (79%)	2,189	1,784 (81%)	939	636 (68%)	1,296	973 (75%)	4,463 (77%)
	Antelope	5,000 (5,014)	64	64 (100%)	2,662	2,611 (97%)	1,445	1,292 (89%)	2,282	1,047 (46%)	6,453 (78%)
Total		19,550 (18,009)	5,870	2,906	19,475	10,444	8,534	2,550	7,958	2,109	41,837
Archery	Moose	50 (34)	0	0	26	26 (100%)	4	4 (100%)	16	16 (100%)	46 (100%)
	Mule Deer	1,075 (999)	7	7 (100%)	138	138 (100%)	166	166 (100%)	711	688 (97%)	1,022 (98%)
	Antlerless	200 (56)	3	3 (100%)	33	33 (100%)	10	10 (100%)	10	10 (100%)	56 (100%)
	Antelope	400 (344)	1	1 (100%)	75	75 (100%)	59	59 (100%)	209	209 (100%)	344 (100%)
Total		1,725 (1,445)	11	11	272	272	239	239	946	923	1,468
Muzzleloading	Mule Deer	375 (379)	37	37 (100%)	304	259 (85%)	188	76 (40%)	265	7 (3%)	794 (48%)
	Antlerless Mule Deer	200 (143)	8	8 (100%)	104	104 (100%)	40	22 (55%)	34	9 (26%)	186 (77%)
Total		575 (522)	45	45	408	363	228	98	299	16	980
Special Season Totals		21,850 (19,976)	5,926	2,962	20,155	11,079	9,001	2,887	9,203	3,048	44,285

*Per cent of successful applicants.

Provincial white-tailed deer populations, although not at the high levels experienced during the late 1960s and early 1970s, appear to be stable or growing slowly. With some minor changes, 1990 hunting seasons for the province **will be similar to the 1989 seasons.**

Antlerless harvest strategies will be **implemented in WMZ 7** and remain in effect for WMZ 2, 6, and subzones in 11/14 and 31/32. The bag limit, however, will be changed to **two deer per licence** to encourage more interest in these special licences and increase harvest on populations in chronic depredation areas.

Moose

The most significant element of the 1989 moose season was that the early regular season coincided more closely to the rut than the season has since the implementation of the Moose Management Program in 1977. Overall licence sales remained stable at approximately 11,700 (Table 1). Archery moose demonstrated the largest jump at 35 per cent. Harvest levels increased by 17 per cent to 4,706 animals. Provincial hunter success (40%) remained similar to the 1988 season.

Populations appear to be stable, if not increasing, throughout most of the northern commercial forest. An aerial survey of the Bronson Forest found population levels to be similar to 1986-87 estimates. As a result, the special draw season in the combined WMZ 47, 55 and 68 will be **re-opened** for 1990. In the remainder of the province, 1990 special draw season dates and quotas will **remain similar** to 1989 except for a **quota increase of 50 licences** in WMZ 67.

A reproductive tract analysis study supported previous work which indicated that the peak of conception in Saskatchewan moose was between September 27 and October 3. On the basis of these studies the regular season will be delayed one week to **commence on October 8** rather than October 1.

Mule Deer

The 1989 mule deer harvest increased 25 per cent from that of 1988 owing to a 7 and 57 per cent rise in either-sex and antlerless licences, respectively (Table 1). Despite a 113 per cent swelling in the antlerless licence quota in 1989, 1,805 licences remained unclaimed by Saskatchewan hunters (Table 3). Provincial hunter success remained at traditional levels of 85-90 per cent for the rifle seasons, 65-75 per cent for muzzleloading rifle and 25-35 per cent for archery.

Throughout the 1980s, the overall management strategy for mule deer was to stabilize populations in high density areas, thus reducing potential over-utilization of habitat and balancing numbers to a level tolerable to landowners and the hunting public. Mild winters and the lack of hunter demand for antlerless licences has resulted in rapid population growth in certain WMZ. To accomplish the herd objective of no growth or reduction in specified WMZ, antlerless licence quotas will be **increased by 27 per cent** and **three additional zones (WMZ 3, 7 and 14)** will be designated for antlerless seasons in 1990. Antlerless applicants for **WMZ 11** will be offered a **two deer per licence** in order to improve hunter response to this season (only 24% of available licences were allocated in 1989).

New either-sex rifle seasons will be established in **WMZ 21 and 41 combined** and in WMZ 22 to take advantage of expanding mule deer populations.

Elk

The 1989 elk harvest increased from that of 1988 by 24 per cent (Table 1). In the regular season licence sales declined 9 per cent from 2,887 in 1988 to 2,658 in 1989 despite the opening of a new areas in WMZ 47 and 68. Increased licence allocations for Cypress Hills West Block (WMZ 7) and a new season in WMZ 58 resulted in draw season sales 13 per cent over the 1988 level. Both the regular and draw season hunter success **rose by 12 per cent and 36 per cent**, respectively from the 1988 averages.

In 1989 the regular elk season was delayed one week to protect the social integrity of breeding elk and to remove hunter conflicts with the overlap of the special moose season. Despite the later season date and fewer regular elk hunters, more bulls were harvested as compared to 1988.

Herd growth along the Forest Fringe has increased elk depredation to the point where past management strategies are no longer acceptable to landowners. The major initiative will be to stabilize population growth. **New licence allocations and special either-sex seasons** will direct harvest to specific areas where conflicts are chronic. Elk hunting in the Cypress Hills West Block will see the **addition of December seasons** to alleviate landowner and hunter complaints regarding poor harvests over recent years.

Pronghorn Antelope

In relation to 1988 harvest levels, the 1989 antelope kill increased 19 per cent, climbing from 3,705 to 4,407 animals (Table 1). Spiralling licence quotas reflected the growth in antelope populations due to mild winters and hunter selection for bucks. Sales climbed from 4,640 to 5,391 licences, yet, hunters maintained their traditionally high success rate of roughly 80-90 per cent.

Antelope populations will continue to grow in light of another mild winter in 1989-90 and the previous year's provincial kid to doe ratio of 0.64 kids per doe (recruitment). Licence allocations for rifle hunting will be **increased by 1,450 licences**. As well, archery quotas will also rise from 400 in 1989 to 450 in 1990. **WMZ 14, 24 to 27** have been **amalgamated** to ensure access to animals. **WMZ 27 has been added** to take advantage of an harvestable population.

The most significant change in 1990 antelope seasons will be the extension of the **three day muzzleloading season to all zones**, except WMZ 3, where antelope may be hunted with a rifle. Unlike other primitive weapon draw seasons for other species where hunters are drawn from pools exclusive to weapon type, the antelope muzzleloading hunters will come from the same pool as hunters who wished to hunt with a rifle only. The first three days of the season (**October 22 to 24**) will be exclusive to the use of a muzzleloading rifle while any legal weapon may be used from **October 25 to November 17**.

Black Bear

The 1989 bear harvest of 1,080 was a 43 per cent drop from the 1988 level of 1,893 and 51 per cent below the 1986-88 average of 218 bears (Table 1). The elimination of the **free bear permit** in 1988 and the **second bear licence** last year have been major contributors to this decline in harvest. Licence sales for residents, Canadian residents and non-residents of Canada fell a combined total of 25 per cent in 1989. Non-residents of Saskatchewan still form a high percentage of bear hunters (25%). Despite an overall reduction in total bear hunters and available licences, hunter success did not improve.

Short of monitoring each and every bear, no tried-and-true method of estimating bear populations has been developed. The population status must be measured through indirect methods such as field reports from hunters, outfitters and conservation officers. Biological collections such as tooth and reproductive tract samples and results of hunter success/activity by way of the Big Game Hunter Questionnaire also provide important clues as to the state of our bear populations.

Analysis of these indicators suggests bear populations in Saskatchewan still continue to decline to a point where, in order to maintain the recreational harvest of bears, the fall bear season should be **reduced to only two weeks** in 1990 and possibly **eliminated in 1991**. However, owing to outfitters' commitments to clients and the financial losses to these businesses, **the 1990 fall bear season will be similar to previous years.**

Barren-ground Caribou

As in past years, only residents of WMZ 76 were allowed to sport hunt barren-ground caribou. Hunters were permitted to purchase two either-sex licences. A special **Subsistence Use Hunting Policy** and **Licence** came into effect in 1988 which afforded traditional users of caribou, and their family members, the opportunity to purchase two either-sex licences per person at a lower fee than that of sporthunters. Only 29 sport licences and no Subsistence Use licences were sold in 1989-90 (Table 1) as a result of snow conditions which limited caribou migration into Saskatchewan and reinstatement of treaty rights to many traditional users. Unregulated and subsistence hunter harvest was conducted solely in the Northwest Territories.

The Caribou Management Board, which Saskatchewan is a member, will continue to co-ordinate management of the Beverly and Kaminuriak herds. The **1990-91 season** will be **similar** to the 1989-90 season.

Woodland Caribou

The woodland caribou season was closed province-wide in 1987, in response to the apparent absence of caribou from large tracts of their historic southern range. An aerial survey in January, 1990 of the Sled Lake survey block found no caribou. A set of three tracks were observed along the Cowan River, however, positive identification as to whether or not they belonged to caribou was inconclusive.

The woodland caribou season will remain **closed** in 1990 and will remain so until such time as better biological information is available on their population status.

Game Birds

Licences and Revenue

Licence sales totalled 33,671, down 8 per cent from 1988 and the lowest value since 1969. Of this total, 28,887 were Saskatchewan residents, 1,568 were Canadians and 3,216 were non-residents of Canada (Table 1). Licence sales have dropped steadily since the mid-70s and the 1989 figure represents a 41 per cent decrease in sales over the long-term average. Migratory bird permit sales dropped to 22,916 from the 1969-88 average of 47,174, a 51 per cent decline.

Ducks

The total 1989 harvest of 104,132 ducks, 72 per cent of which were mallards, was down 1 per cent from the reported 1988 harvest of 104,776 birds (Table 1). Duck harvest per active hunter averaged 5.3 birds.

Mid-winter waterfowl surveys (January 1990) indicated mallards and total ducks were up 5 and 10 percent, respectively, from the previous year. Results from the joint Canadian Wildlife Service - United States Fish and Wildlife Service May pond and breeding pair surveys indicate a 60 per cent increase in ponds in southern Saskatchewan compared to 1989. This will equate to some improvement in the 1990 duck population. However, the 1990 season will be similar to 1988, that is, **five ducks daily, three of which may be mallards** and a **possession limit of 10, six of which may be mallards.** In 1990, **only one pintail** and **only one canvasback** may be taken **daily** and **possession** will be **two of each of these species.**

Geese

The 1989 goose harvest increased 27 per cent from 122,959 in 1988 to 155,958 in 1989 (Table 1). Canada geese, all races combined, comprised 61 per cent of the harvest (94,853) followed by white-fronted geese at 35,581 (23%), lesser snow geese at 22,611 (15%) and Ross' geese at 2,913 (2%).

Populations of large Canada geese continue to thrive in agricultural Saskatchewan. Snow goose populations have been increasing in recent years and Saskatchewan sporthunters have been encouraged to harvest more of these white geese.

Sandhill Cranes

Sandhill crane harvest in Saskatchewan was traditionally small until 1985 when 4,468 cranes were taken. This figure was nearly double that of previous years. The crane harvest in 1989 (2,318) was 54 per cent below the 1988 provincial estimate of 4,991 birds and 36 per cent below the 10 year average (Table 1).

No major change in the status of the sandhill crane populations which migrate through Saskatchewan is foreseen for the 1990 season. Because of the inclusion of sandhill cranes on the CITES treaty list continues to pose a problem for non-resident of Canada hunting, the 1990 season will **continue to be restricted to residents of Canada, only.** Season dates and bag limits will be **similar** to 1989 except for date adjustments.

Sharp-tailed Grouse

Sharp-tailed grouse harvest continued to decline in 1989 with only 48,502 birds taken; the second lowest harvest figure since 1972 (Table 2). The number of active hunters also decreased from 17,240 in 1988 to a long-term low of 15,368 in 1989.

Reproduction improved in 1989 with a reproductive index of 1.24 juveniles per adult determined from wing samples from hunter-killed birds. This is a noticeable improvement over the virtual reproductive failure in 1988 but still falls short of the long-term average by 23 per cent. Spring surveys in 1990 show higher densities of breeding males and reflect the improved reproduction.

Bag limits in 1990 will remain standard at three province-wide and season dates will remain similar to 1989 except for calendar adjustment. The shortened season implemented in 1989 will remain in effect until populations improve.

Hungarian Partridge

The 1989 harvest of Hungarian partridge was estimated at 65,014 birds, 17 per cent lower than 1988 and 3 per cent lower than the long term average. The estimate of 14,000 active hunters was slightly below (3%) 1989 but significantly below (24%) the long-term average. The farmland zones continued to exhibit the highest harvest and hunter activity.

Hungarian partridge experienced good reproduction in 1989 with a calculated index of 3.4 juveniles per adult based on a sample of wings from hunter killed birds. This exceeds the 1988 index by over 340 per cent and the long term index by nearly 10 per cent. Spring surveys indicate a 20 per cent overall reduction in the number of breeding pairs per farmstead. Although the breeding index was higher than in the farmland zones than in 1989, the 32 per cent reduction in the grassland zones lowered the overall index.

The outlook for Hungarian partridge for 1990 looks promising. Adequate breeding populations combined with average reproduction should result in good populations entering the fall hunting season. Long seasons and high bag limits will remain for 1990 with adjustments only made to accommodate calendar change.

Pheasant

Approximately 4,050 hunters were active during the 1989 pheasant season compared to 4,941 in 1988. Harvest dropped marginally in 1989 to 10,378 cocks from 11.160 in 1988. Each hunter took an average of 2.5 birds which was comparable both to 1988 and the long-term average.

Spring surveys in 1990 indicated an increase in the breeding index to 4.64 cocks per survey stop compared to 2.64 in 1989. This population fluctuation seems to follow the apparent three year cycle in Saskatchewan's pheasant population.

Indicators point to an encouraging season for 1990. Season dates will remain the same as in 1989 except for calendar adjustment. The Wednesday opening date will remain and the late season will be retained.

Ruffed Grouse

In 1989, the ruffed grouse harvest was the highest of any of the upland game birds. The harvest was estimated at 70,781 birds, a decline of almost 19 per cent from the previous years. The number of active hunters also decreased to 12,180 in 1989 compared to 13,012 in 1988. This reduction in harvest and hunter activity is a direct result of declining bird numbers caused by the downward trend in the population cycle. Traditionally, the forest zones experience the highest harvest (near 40 per cent) followed by the parkland, forest fringe and farmland zones.

Despite good reproduction in 1989, ruffed grouse populations will again decline in 1990 and should continue to do so until 1992 or 1993. This eight to 10 year cycle is unaffected by season dates or bag limits, therefore, limits and season structure in 1990 will remain similar to 1989.

Spruce Grouse

In 1989, a harvest of 10,378 spruce grouse was taken by 3,500 active hunters. Harvest and hunter activity trends for spruce grouse usually follow those of the ruffed grouse and therefore harvest can be expected to decline further over the next few years.

Season dates and bag limits will be the same as ruffed grouse in applicable zones.

Willow Ptarmigan

The 1989 sport harvest was estimated at 301 ptarmigan and is virtually insignificant from a management perspective. It is believed many more birds are taken by local residents and harvest is dependent more upon bird migration rather than season dates or bag limits.

Seasons will remain long and bag limits high for 1990.

TABLE OF CONTENTS

Page

Executive Summary i
Table of Contents x
List of Tables xi
List of Figures xvi
List of Appendices xix

BIG GAME

GENERAL INFORMATION

Hunting Regulations 1
Data Collection Techniques 1

WHITE-TAILED DEER 5
MOOSE 38
MULE DEER 58
ELK 72
PRONGHORN ANTELOPE 86
BLACK BEAR 93
BARREN-GROUND CARIBOU 105
WOODLAND CARIBOU 106

GAME BIRDS

GENERAL INFORMATION

Hunting Regulations 107
Data Collection Techniques 107

MIGRATORY BIRDS

Introduction 110
Review of 1989 Hunting Season 110
Other Waterfowl Regulations 110

DUCKS 112
GEESE 120
SANDHILL CRANES 123

UPLAND GAME BIRDS

Review of 1989 Hunting Season 125
Population Status 128

SHARP-TAILED GROUSE 131
HUNGARIAN PARTRIDGE 140
PHEASANT 146
RUFFED GROUSE 151
SPRUCE GROUSE 155
PTARMIGAN 157

LIST OF TABLES

		Page
Table 1.	Estimates of hunting licence sales and game harvests, 1987-89	i
Table 2.	Gross revenue from licence sales, 1987-89	ii
Table 3.	Licence allocations, eligible and successful applicants by priority pool, and possible Super A Pool applicants in 1990 for the 1989 special seasons	iii
Table 4.	Big game hunter questionnaire statistics, 1989	3
Table 5.	Provincial white-tailed deer licence sales, 1985-89	5
Table 6.	Provincial white-tailed deer harvest, 1989	6
Table 7.	Provincial white tailed deer harvest, 1983-89	7
Table 8.	Grassland and Farmland either-sex white-tailed deer rifle harvest, 1989	8
Table 9.	White-tailed deer regular rifle harvest for the highest harvest zones in Saskatchewan, 1984-89	9
Table 10.	Parkland and Forest Fringe white-tailed deer rifle harvest, 1989	10
Table 11.	Forest 1st licence white-tailed deer rifle harvest, 1989	11
Table 12.	Forest 2nd licence white-tailed deer rifle harvest, 1989	11
Table 13.	Antlerless season white-tailed deer rifle harvest, 1989	12
Table 14.	Grassland white-tailed deer archery harvest, 1989	13
Table 15.	Farmland white-tailed deer archery harvest, 1989	14
Table 16.	Parkland and Forest Fringe white-tailed deer archery harvest, 1989	14
Table 17.	Forest 1st and 2nd licence white-tailed deer archery harvest, 1989	15
Table 18	Grassland white-tailed deer muzzleloader harvest, 1989	16
Table 19.	Farmland white-tailed deer muzzleloader harvest, 1989	16
Table 20.	Parkland and Forest Fringe white-tailed deer muzzleloader harvest, 1989	17
Table 21.	Forest 1st and 2nd licence white-tailed deer muzzleloader harvest, 1989	17
Table 22.	Provincial white-tailed deer harvest structure, 1986-89	18
Table 23.	Sex and age composition of the 1989 Saskatchewan white-tailed deer harvest from lower jaw samples collected in WMZ 15 to 18, 24, 31 to 39	19
Table 24.	Per cent harvest by age class of white-tailed deer from lower jaw samples collected by the department and the Saskatchewan Wildlife Federation, 1984-89	20

Page

Table 25. White-tailed deer population estimates based on stratified random block aerial survey sampling, 1979-90 23

Table 26. Provincial white-tailed deer population structure based on preseason field observations, September to November 1986-89 . 25

Table 27. Percentage of white-tailed does with and without fawns based on preseason field observations, September to November, 1986-89 28

Table 28. Percentage of yearling and mature males in the provincial white-tailed deer population based on preseason field observations, September to November, 1986-89 28

Table 29. Grassland white-tailed deer population structure based on preseason field observations, September to November, 1986-89 29

Table 30. Farmland white-tailed deer population structure based on preseason field observations, September to November, 1986-89 30

Table 31. Parkland white-tailed deer population structure based on preseason field observations, September to November, 1986-89 30

Table 32. Forest Fringe white-tailed deer population structure based on preseason field observations, September to November, 1986-89 31

Table 33. Forest white-tailed deer population structure based on preseason field observations, September to November, 1986-89 31

Table 34. Provincial moose licence sales, 1983-89 38

Table 35. Moose sport harvest by licence type, 1984-89 39

Table 36. Provincial moose harvest structure, 1986-89 42

Table 37. Sex and age composition of the 1989 Saskatchewan moose harvest as calculated from tooth samples 43

Table 38 Moose population estimates based on trend line aerial surveys, 1978-89 46

Table 39. Moose population estimates based on stratified random quadrat aerial survey sampling, 1982-89 48

Table 40. Mean age of adult animals in the harvest and comparison of 1½ - 3½ year old males to prime age males 49

Table 41. Comparison of season dates for regular and guided moose licences 55

Table 42. Provincial mule deer draw licence sales, 1985-89 58

Table 43. Provincial mule deer harvest, 1989 59

Table 44. Estimated hunter success and harvest pressure during the either-sex mule deer rifle season, 1989 59

Table 45. Estimated hunter success and harvest pressure during the antlerless mule deer rifle season, 1989 60

		Page
Table 46.	Provincial mule deer harvest structure and recreation days, 1988 and 1989	60
Table 47.	Sex and age of mule deer sampled at WMZ 10 check stations during the 1989 antlerless seasons	62
Table 48.	Estimated hunter success and harvest pressure during the mule deer archery season, 1989	63
Table 49.	Estimated hunter success and harvest pressure during the mule deer muzzleloading season, 1989	64
Table 50.	Mule deer postseason population estimates in sandhill complexes, 1988-89 and 1989-90	64
Table 51.	Mule deer postseason population estimates for ranches and pastures in WMZ 10 Great Sandhills, 1988-89 and 1989-90	65
Table 52.	Provincial mule deer population structure based on preseason field observations, September to November, 1986-89	66
Table 53.	Grassland mule deer population structure based on preseason field observations, September to November, 1989	66
Table 54.	Percentage of yearling and mature males in the provincial mule deer population based on preseason field observations, September to November, 1987-89	67
Table 55.	Percentage of mule deer does with and without fawns based on preseason field observations, September to November, 1987-89	67
Table 56.	Mule deer licence quotas for rifle seasons, 1986-90	69
Table 57.	Mule deer licence quotas for primitive weapons seasons, 1989 and 1990	69
Table 58.	Provincial elk licence sales, 1985-89	72
Table 59.	Estimated hunter success and harvest pressure during the bull elk season, 1989	73
Table 60.	Estimated hunter success and harvest pressure during the draw either-sex seasons, 1989	74
Table 61.	Bull harvest in the bulls only season, 1989	75
Table 62.	Draw either-sex season in the four major elk producing areas of Saskatchewan	76
Table 63.	Bull age structure in the regular season harvest	76
Table 64.	Age structure in the special either-sex elk seasons, Forest Fringe and Forest zones	77
Table 65.	WMZ 48, 49, 56 and 57 age structure in the special either-sex seasons	77
Table 66.	Elk herd structure by WMZ and ecozone from preseason observations	81
Table 67.	Provincial pronghorn antelope draw licence sales, 1985-89	86
Table 68.	Provincial antelope harvest, hunting success and pressure, 1989	87

Page

Table 69. Population hunting statistics by licence type for antelope, 1989 87

Table 70. Population densities and sex/age composition for antelope in Saskatchewan, 1989 89

Table 71. Antelope kid to doe ratios estimated by July aerial surveys, 1982-89 90

Table 72. Antelope kid:mature doe (2+ yrs) ratios estimated by July aerial surveys, 1983-89 90

Table 73. Antelope licence quotas for years 1987-90 92

Table 74. Provincial bear licences sales by hunter residency, 1985-89 . 93

Table 75. Bear licence sales and per cent resident hunter success by licence type, 1986-89 94

Table 76. Provincial bear harvest and hunter activity (1st, 2nd and free bear licences combined) by ecological zone, 1986-89, based upon resident hunter success rates 94

Table 77. Spring versus fall values for age/sex composition of the resident sport harvest of black bears in the forest wildlife management zones in Saskatchewan, 1985-89 103

Table 78. Saskatchewan game bird licence sales and migratory game bird permit sales, 1969-89 108

Table 79. Estimated retrieved kill of ducks in Saskatchewan, 1979-89 by WMZ 112

Table 80. Estimated retrieved kill of mallards in Saskatchewan, 1979-89 113

Table 81. Estimated retrieved kill of pintails and canvasbacks in Saskatchewan, 1979-89 114

Table 82. Long-term trend in May pond estimates by stratum in southern Saskatchewan, comparing 1990 with 1989, the 1980-89 previous 10-year mean, and the 1961-89 long-term mean 117

Table 83. Status of waterfowl breeding population estimates by species and stratum in southern Saskatchewan, comparing 1990 with 1989, the 1980-89 previous 10-year mean, and the 1955-89 long-term mean 117

Table 84. Long-term trend in July pond indices by stratum in southern Saskatchewan, comparing 1990 with 1989, the 1979-89 previous 10-year mean, the 1955-89 long-term mean, and comparison of May with July ponds in 1989 118

Table 85. Status of waterfowl brood and late-nesting indices by stratum in southern Saskatchewan, comparing 1990 with 1989, the 1980-89 previous 10-year mean, and the 1955-89 long-term mean 119

Table 86. Goose harvest in Saskatchewan, 1978-89 120

Page

Table 87. Estimated retrieved kill of sandhill cranes in Saskatchewan, 1979-89 123

Table 88. Saskatchewan upland game bird hunting activity, 1973-89 . . . 125

Table 89. Saskatchewan upland game bird harvest by ecozone, 1988-89 . . 126

Table 90. Saskatchewan upland game bird harvest summary, 1989 127

Table 91. Sharp-tailed grouse hunting statistics by Saskatchewan ecozone for 1988-89 131

Table 92. Sharp-tailed grouse hunting data for Saskatchewan, 1972-89 . 132

Table 93. Sharp-tailed grouse reproductive index (juveniles/adult) 1975-89 135

Table 94. Sharp-tailed grouse breeding population surveys, April-May 1990 137

Table 95. Hungarian partridge hunting data for Saskatchewan, 1972-89 . 140

Table 96. Hungarian partridge hunting data for Saskatchewan by ecozone, 1989 vs. 1988 141

Table 97. Hungarian partridge reproductive index (juveniles/adult), 1957-89 143

Table 98. Hungarian partridge breeding population surveys, spring, 1990 144

Table 99. Pheasant hunting data for Saskatchewan, 1976-89 146

Table 100. Four important pheasant hunting zones in Saskatchewan, 1986-89 148

Table 101. Spring breeding surveys of ring-necked pheasant crows per survey stop, 1961-90 148

Table 102. Cock pheasant breeding population surveys, spring 1990 . . . 149

Table 103. Ruffed grouse hunting data for Saskatchewan, 1972-89 151

Table 104. Ruffed grouse hunting data for Saskatchewan by ecozone, 1989 vs. 1988 152

Table 105. Ruffed grouse reproductive index (juveniles/adult), 1979-89 153

LIST OF FIGURES

		Page
Figure 1.	Hunter participation in the 1989 big game hunting seasons	4
Figure 2.	Recreation days by species created in the 1989 big game seasons	4
Figure 3.	Provincial white-tailed deer licence sales, 1969-89	6
Figure 4.	White-tailed deer harvest by age class from southeastern Saskatchewan based on lower jaw samples, 1984-89	21
Figure 5.	White-tailed deer population estimates based on stratified random block aerial survey sampling, 1982-90	24
Figure 6.	White-tailed deer population estimates based on stratified random block aerial survey sampling, 1982-90	24
Figure 7.	White-tailed deer fawn production based on preseason field observations, September to November, 1984-89	26
Figure 8.	White-tailed deer fawn production based on preseason field observations, September to November, 1984-89	27
Figure 9.	Estimated provincial hunter success and harvest pressure during the moose season, 1959-89	40
Figure 10.	Sex and age composition of the provincial moose harvest based on check station samples, 1965-89	44
Figure 11.	Per cent of moose cows pregnant and maturity of cows pregnant	50
Figure 12.	Per cent of mature and yearling moose cows which were pregnant	50
Figure 13.	Twinning rates for pregnant cow moose, includes yearling cows	51
Figure 14.	Moose conception dates, 1989	51
Figure 15.	Moose conception dates from different years and locations in Saskatchewan	52
Figure 16.	Theoretical 1990 moose breeding period (based on 1989 conception dates).	54
Figure 17.	Composition of provincial mule deer harvest from all ecozones and all season types 1986-89, inclusive	61
Figure 18.	Per cent of elk cows pregnant and maturity of cows pregnant, 1989	78
Figure 19.	Per cent of known age elk cows pregnant, 1989	78
Figure 20.	Elk conception dates, 1989	79
Figure 21.	Elk conception by week, 1989	79
Figure 22.	Harvest estimates and corrected estimates for sport harvested black bears in Saskatchewan from 1986-89	95
Figure 23.	Days/animal harvested and per cent resident hunter success in Saskatchewan for the period 1986-89	96

Page

Figure 24. 1988 sex/age breakdown for black bears in northeastern Saskatchewan 98

Figure 25. 1988 sex/age breakdown for black bears in northwestern Saskatchewan 98

Figure 26. 1989 sex/age breakdown for black bears in northeastern Saskatchewan 99

Figure 27. 1989 sex/age breakdown for black bears in northwestern Saskatchewan 99

Figure 28. Age frequency distribution of sport harvested bears in Saskatchewan for 1988 and 1989 100

Figure 29. Cub to female ratio in the Saskatchewan black bear harvest as indicated by resident hunter questionnaires 101

Figure 30. Active hunters by species in the 1989 game bird hunting season 109

Figure 31. Recreation days created by species in the 1989 game bird hunting season 109

Figure 32. Saskatchewan duck harvest, 1979-89 113

Figure 33. Saskatchewan mallard harvest, 1979-89 114

Figure 34. Per cent of normal precipitation (mm) in prairie Canada, April 1 to July 29, 1990 115

Figure 35. Palmer Drought Index values for prairie Canada, July, 1990 . 116

Figure 36. Saskatchewan goose harvest, 1978-89 121

Figure 37. Active upland game bird hunters in Saskatchewan, 1972-89 . . 126

Figure 38. Saskatchewan upland game bird fall age ratios, 1957-89 . . . 128

Figure 39. Incubation and hatching chronology for sharp-tailed grouse in Saskatchewan 129

Figure 40. Incubation and hatching chronology for Hungarian partridge in Saskatchewan 130

Figure 41. Saskatchewan sharp-tailed grouse hunting activity, 1957-89 132

Figure 42. Percentage of sharp-tailed grouse harvest by residency and weekly intervals 134

Figure 43. Comparison of reproductive success and harvests to provincial breeding population densities 136

Figure 44. Sharp-tailed grouse breeding population densities (males/mi^2) 138

Figure 45. Saskatchewan Hungarian partridge hunting activity, 1972-89 . 141

Figure 46. Saskatchewan 1989 Hungarian partridge harvest by residency and weekly intervals 142

Figure 47. Saskatchewan pheasant licence sales, active hunters and harvest, 1972-89 147

Page

Figure 48. Saskatchewan 1989 pheasant harvest by residency and weekly intervals 147

Figure 49. Saskatchewan pheasant spring breeding population index, 1972-90 149

Figure 50. Saskatchewan 1989 ruffed grouse harvest by residency and weekly intervals 153

Figure 51. Saskatchewan ruffed and spruce grouse harvest, 1972-89 . . . 154

Figure 52. Saskatchewan 1989 spruce grouse harvest by residency and weekly intervals 155

Figure 53. Saskatchewan 1989 ptarmigan harvest by weekly interval . . . 157

LIST OF APPENDICES

		Page
Appendix 1.	1989 big game hunting season regulations	159
Appendix 2.	1989 Saskatchewan big game draw information sheet	163
Appendix 3.	1989 big game hunter survey questionnaire	171
Appendix 4.	Follow-up letter for 1989 big game hunter survey questionnaire	175
Appendix 5.	Projected hunting statistics by licence type for antelope, 1989	176
Appendix 6.	1989 Saskatchewan spring bear season	177
Appendix 7.	Saskatchewan 1989 game bird seasons	181
Appendix 8.	January 1990 mid-winter waterfowl survey, United States summary	182
Appendix 9a.	Saskatchewan duck hunting regulations, 1976-89	183
Appendix 9b.	Saskatchewan goose hunting regulations, 1981-89	184
Appendix 9c.	Saskatchewan sharp-tailed grouse hunting regulations, 1976-89	185
Appendix 9d.	Saskatchewan Hungarian partridge hunting regulations, 1976-89	186
Appendix 9e.	Saskatchewan pheasant hunting regulations, 1975-89	187
Appendix 9f.	Saskatchewan ruffed grouse hunting regulations, 1977-89	188
Appendix 10.	Ruffed grouse spring survey data, 1986-89	189
Appendix 11.	Saskatchewan game management zones, 1975-83	190
Appendix 12.	Saskatchewan wildlife management zones, 1984-89	191
Appendix 13.	1989 Saskatchewan game bird hunter survey questionnaire	192

BIG GAME

GENERAL INFORMATION

Hunting Regulations

Hunting season dates, bag limits and licence quotas for each big game species are presented in Appendix 1.

All mule deer, antelope, either-sex moose and either-sex elk licences were available only through a computerized draw[1] (Appendix 2). As in previous years, resident hunters could purchase bull-calf moose and antlered elk licences if they were not successful in the licence draws for these species. White-tailed deer, black bear and guided moose licences were available to resident, Canadian resident and non-resident of Canada hunters. Only residents of WMZ 76 were eligible for barren-ground caribou licences.

Hunters were allowed to purchase two white-tailed deer licences, the second licence valid in specific forest wildlife management zones (WMZ). Zones An additional antlerless whitetail licence was available to mule deer hunters for WMZ 2, 6 and the specified subzones in WMZ 11-14 and WMZ 31-32.

Data Collection Techniques

Licence Sales

Department of Natural Resources (DNR), Management Services Section, tabulated and mailed computerized draw licences directly to hunters.

White-tailed deer, black bear, regular moose and regular elk licences were purchased through approximately 1,400 commercial vendors and DNR district offices distributed throughout the province. Vendors returned sold and unsold licences to Management Services who were then able to determine provincial licence sale figures for each big game species.

Saskatchewan Big Game Hunter Questionnaire Survey

On November 20, 1989, 27,500 big game questionnaires were mailed to Saskatchewan residents (Appendix 3). The hunters sampled included a non-random selection of 1989 big game draw licence holders and 1988 regular white-tailed deer, regular elk and regular moose licence holders. An error in the development of the mailing list resulted in 1988 draw season hunters receiving the questionnaire rather than the 1989 draw hunters. However, since most big game hunters participate in more than one big game hunt each year, adequate hunt activity and harvest information for the different 1989 draw seasons was supplied by the 1988 sample.

---

[1]The one exception was WMZ 53 where regular elk hunters were allowed to harvest either sex.

Follow-up questionnaires were mailed on January 2, 1990 to hunters who failed to reply to the first questionnaire. The cut-off date for return of questionnaires was January 19, 1990. Returned forms were edited and the data entered into a computer. The data print-out was available for analysis by March 26, 1990 incorporating usable data from 10,286 questionnaires or 51 per cent of the total questionnaires mailed to hunters (Table 4 and Figures 1 and 2).

Biological Data Collection Points

All hunters using designated collection points for big game in Saskatchewan were eligible to enter a draw for major prizes (Wildlife Co-operator Awards Program). All hunters providing biological samples received a Wildlife Co-operator lapel pin.

Approximately 23 Saskatchewan Wildlife Federation branches along with 17 private co-operator collection points were used to obtain samples to determine age and sex information for white-tailed deer, moose and elk. Age determinations for elk and moose older than calves were based on tooth (incisor) cementum deposition. Molar wear on lower deer jaws were used to determine age class. Reproductive tracts from moose and elk were collected at northeastern collection points and DNR offices. Embryo sizes were measured and back dated to estimate date of conception. Antlerless mule deer check stations were operated by DNR Wildlife Branch staff in WMZ 10 and collected doe ages and fawn weights.

Population Surveys

Aerial surveys were conducted during the winter months to estimate population levels, herd segregation and productivity in selected moose, white-tailed deer, mule deer and elk populations. January and February white-tailed deer, elk and moose population estimates were obtained using a stratified random block survey design. Trend line surveys and sex-age surveys were employed to obtain population trend and herd structure data, respectively, for winter moose and mule deer populations. Antelope density and herd structure data will be obtained from late June trend line aerial surveys.

A population structure investigation (Co-operative Wildlife Management Study) continued for all big game species with the assistance of conservation officers, Saskatchewan Wildlife Federation members and the general public. Co-operators classified observed animals by sex (male vs. female) and age (fawn vs. adult) class, and provided information on antler development for males and adult doe productivity observed in the survey.

Table 4. Big game hunter questionnaire statistics, 1989[a].

Species	Actual Hunters	Hunter Success	Hunter Harvest	Days of Recreation
White-tailed Deer				
1st Archery	944	23%	216	6,544
2nd Archery	180 > 1,124	62% > 29%	112 > 328	910
1st Muzzleloader	757	40%	301	2,842
2nd Muzzleloader	145 > 902	57% > 42%	82 > 383	535
1st Rifle	41,291	80%	32,882	146,155
2nd Rifle	7,835 > 49,126	73% > 79%	5,759 > 38,641	28,680
Antlerless	874	74%	646	1,612
Species Total	52,026	77%	39,998	187,278
Mule Deer				
Archery either-sex	957	37%	350	5,858
Archery antlerless	50	33%	17	267
Muzzleloader either-sex	196	67%	131	813
Muzzleloader antlerless	100	61%	62	273
Rifle either-sex	6,244	90%	5,637	12,623
Rifle antlerless	3,344	95%	3,162	4,857
Species Total	10,891	86%	9,359	24,692
Moose				
Special archery	46	13%	6	247
Regular archery	46	31%	14	198
Special either-sex	1,783	59%	1,050	8,061
Regular bull-calf	9,549	37%	3,507	45,545
Guided	252	unk	unk	unk
Species Total	11,676	43%	4,954	54,052
Antelope				
Archery	335	27%	90	1,669
Rifle	5,006	86%	4,317	9,214
Species Total	5,341	83%	4,407	10,883
Elk				
Special either-sex	1,246	37%	465	5,501
Regular bulls only	2,649	19%	500	11,558
Species Total	3,895	40%	965	17,060
Bear				
1st either-sex	2,868	28%	806	14,340
Species Total	2,868	28%	806	14,340
Barren-ground Caribou[b]				
1st either-sex	17	N/A	N/A	N/A
2nd either-sex	12	N/A	N/A	N/A
Species Total	29	0	13	N/A
Grand Total	86,726	70%	60,502	308,305

[a]Statistics may vary somewhat from those in species report owing to rounding of numbers in Big Game Hunter Questionnaire program.

[b]Caribou hunting by Saskatchewan residents was conducted solely in the Northwest Territories.

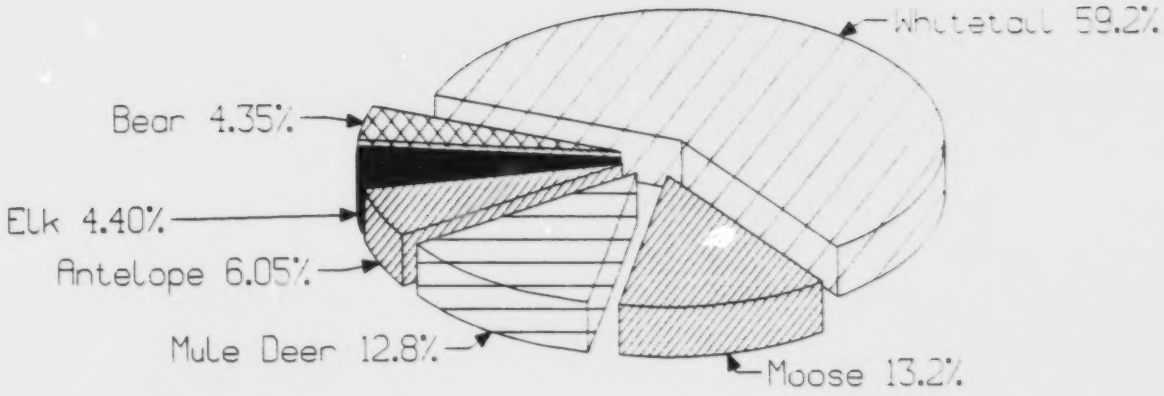


Figure 1. Hunter participation in the 1989 big game hunting seasons.

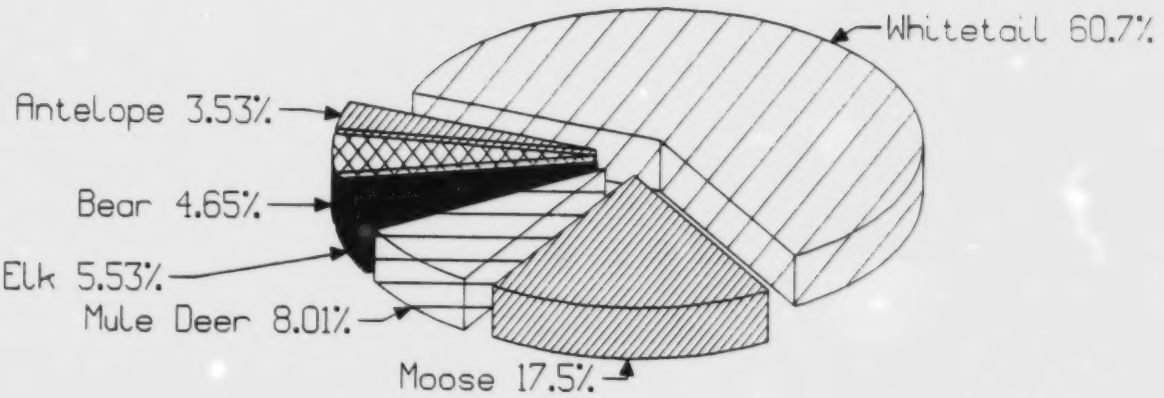


Figure 2. Recreation days by species created in the 1989 big game seasons.

WHITE-TAILED DEER

A. REVIEW OF THE 1989 HUNTING SEASON

1. Licence Sales

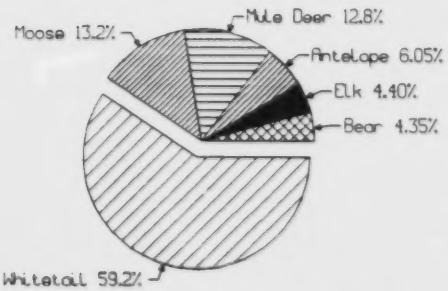
- Total licence sales increased to 52,743, a 2 per cent increase from 51,758 licences sold in 1988 (Tables 1 and 5). However, long-term sales figures indicate that hunter numbers have declined, despite more liberal season dates and bag limits (Figure 3).
- In northern Saskatchewan, resident second deer licence sales increased to 8,124 licences, a 14 per cent increase from 1988 and one of the highest sale figures on record as a result of unusually high forest deer numbers.
- There were moderate changes in the number of Canadian and non-resident licences sold, but because of current season restrictions (able to hunt in Forest zones only), they continued to represent only a small proportion of the overall licence sales.

Table 5. Provincial white-tailed deer licence sales, 1985-89[a].

	1985	1986	1987	1988	1989	% Change
1st Licence Sales						
Resident	45,532	48,432	41,533	43,023	42,110	-2.1%
Canadian Resident	786	491	438	576	738	+28.1%
Non-resident	136	157	253	532	672	+26.3%
2nd Licence Sales						
Resident (Antlerless)[b]	419	1,512[c]	339	316	864	+173.4%
Resident	—	—	4,453	7,109	8,124	+14.3%
Canadian Resident	—	—	18	39	48	+23.1%
Non-resident			71	163	187	+14.7%
Other Licence Sales[c]						
Resident Archery	1,357	1,341	—	—	—	—
Resident Muzzleloading	577	587	—	—	—	—
Total Sales	48,807	52,160	47,105	51,758	52,743	+1.9%

[a]Final (June 26, 1990) sale figures; however, all data analysis based on licence sale projections available in mid-February, 1990.
[b]Additional antlerless licences were sold due to liberalized mule deer quotas; some mule deer hunters were allowed to purchase antlerless white-tail licences.
[c]Starting in 1987, the 1st and 2nd licences were valid for archery, muzzleloader and rifle seasons; a separate licence was not required for each weapon type.

1989 Big Game Licence Sales



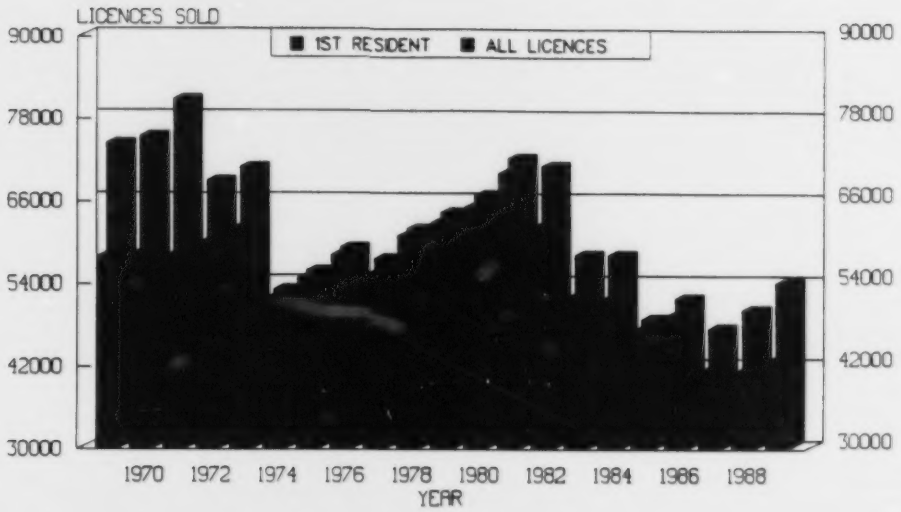


Figure 3. Provincial white-tailed deer licence sales, 1969-89.

2. Provincial Harvest and Hunting Activity

- With mild temperatures and weather conditions, sport hunters experienced excellent hunting opportunity during all 1989 hunting seasons. There were 52,026 active hunters in the field, a slight increase from 46,377 hunters in 1988 (Table 6).

Table 6. Provincial white-tailed deer harvest, 1989.

Ecozone	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young (Actual Harvest)	Hunter Days	Hunter Days/ Animal
Grassland	7,384	8,904	5,850	79.2	5,850	3.53:1:0.31	20,341	3.4
Farmland	10,322	13,382	8,011	77.6	8,011	3.02:1:0.28	33,537	4.2
Parkland	18,053	21,336	13,953	77.3	13,953	2.98:1:0.38	61,787	4.4
Forest Fringe	3,194	4,490	2,629	82.3	2,629	3.45:1:0.57	14,491	5.5
Forest	13,072	16,643	9,556	73.1	9,556	2.12:1:0.42	57,121	5.9
Shield	0	0	0	0.00	0	0.00:1:0.00	0	0.0
Total	52,026	64,755	39,998	76.9	39,998	2.84:1:0.37	187,278	4.7

- On a provincial scale, harvest from all weapon types increased 11 per cent, from 35,910 (1988) to 39,998 (1989) deer, similar to harvest levels experienced during the early 1980's (Table 7). Overall hunter success was similar to 1988 but remained higher than success rates reported during the early to mid-1980's. Hunters spent 187,278 days in the field, a 5 per cent increase from 1988, but hunter days/animal remained at five days.
- The Parkland, Forest, Farmland, Grassland and Forest Fringe ecozones accounted for 34, 24, 20, 15 and 7 per cent of the provincial harvest, respectively. These percentages represented a slight change from previous years, with the Forest harvest higher than normal as a result of improved populations and liberalized bag limits and season dates. The Farmland and Parkland harvests also increased as a result of growing deer numbers, although harvests, particularly in the Farmland area, remained well below levels recorded in the early 1980's.

Table 7. **Provincial white-tailed deer harvest, 1983-89.**

Ecological Zone	Harvest							Percent Hunter Success						
	1983	1984	1985	1986	1987	1988	1989	1983	1984	1985	1986	1987	1988	1989
Grassland[a]	3,893	6,110	3,840	8,129	5,539	6,243	5,850	61	83	47	74	88	85	79
Farmland	12,629	11,287	5,486	7,944	5,987	7,974	8,011	55	78	44	64	72	77	78
Parkland	11,255	13,608	7,384	11,358	8,751	11,449	13,953	57	78	44	65	82	81	77
Forest Fringe	—	2,145	1,336	2,900	2,558	2,721	2,629	—	67	45	70	78	83	82
Forest[b]	5,797	5,669	1,815	4,410	6,568	7,523	9,556	—	59	37	61	73	67	73
1st Licence	3,938	3,077	—	—	4,122	3,586	3,602	33	57	—	—	76	64	74
2nd Licence	1,859	2,592	—	—	2,446	3,937	5,953	46	62	—	—	70	69	72
Total	33,574	38,820	19,860	34,742	29,399	35,910	39,998	53	75	43	66	76	78	77

Ecological Zone	Hunter Days							Hunter Days/Animal						
	1983	1984	1985	1986	1987	1988	1989	1983	1984	1985	1986	1987	1988	1989
Grassland	12,453	12,032	19,075	29,015	22,611	22,947	20,341	3	2	5	4	4	4	3
Farmland	48,474	30,286	40,442	41,378	32,458	37,813	33,537	4	3	7	5	5	5	4
Parkland	49,791	39,967	52,869	65,142	49,159	57,531	61,787	4	3	7	6	6	5	4
Forest Fringe	—	9,365	12,270	18,196	14,470	14,074	14,491	—	4	9	6	6	5	6
Forest	47,937[c]	29,619[c]	23,021	36,472	38,485	45,162	57,121	8	5	13	8	6	6	6
1st Licence	—	—	—	—	27,153	26,900	26,996	—	—	—	—	7	8	7
2nd Licence	—	—	—	—	11,332	18,262	30,125	—	—	—	—	5	6	5
Shield	—	—	—	—	29	0	0	—	—	—	—	0	0	0
Total	159,235	121,268	147,678	190,203	157,212	177,527	187,278	5	3	7	5	5	5	5

[a]Includes harvest and hunt activity on antlerless licences offered to some either-sex mule deer licence holders.
[b]Total 1st and 2nd licence hunting activity.
[c]Two licences were offered in the Forest between 1982 and 1984 but hunter days per licence type could not be separated.

- Provincially, 49,122 regular rifle, 843 antlerless rifle, 1,141 archery and 920 muzzleloader hunters accounted for 94, 2, 2 and 2 per cent of the harvest, respectively, with success rates similar to 1988 for each respective weapon type. The one licence system introduced in 1987, making the either-sex licence valid for all season dates, provided hunters use the required weapon type, continued to be popular among sport hunters.

3. Rifle Season Harvest

- The Grassland rifle harvest of 5,286 deer was slightly lower than 1988 but remained above the long-term average for the 1980's (Tables 8 and 9). The highest harvests occurred in WMZ 4, 2, 1, 6, 14 and 5 with over 500 deer taken in each zone. These zones support some of the best deer densities in the Grassland ecozone and although harvests fluctuate between years, these areas consistently comprise the highest percentage of the harvest.

Table 8. Grassland and Farmland either-sex white-tailed deer rifle harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
1	718.8	876	596	83.0	596	3.33:1:0.17	2,321	3.9	0.2789
2	780.5	951	645	82.6	645	4.38:1:0.29	2,235	3.4	0.2100
3	127.9	156	113	88.2	113	20.00:1:0.00	290	2.6	0.0675
4	749.9	913	661	88.1	661	5.00:1:0.37	1,628	2.5	0.2005
5	578.0	704	500	86.4	500	7.09:1:0.27	1,622	3.2	0.2719
6	644.1	784	559	86.7	559	11.75:1:0.13	1,998	3.6	0.4764
7	167.6	204	140	83.3	140	4.00:1:0.20	457	3.2	0.2410
8	123.6	150	91	73.9	91	85.95:1:5.37	295	3.2	0.0871
9	622.1	757	483	77.7	483	7.09:1:0.09	1,757	3.6	0.5114
10	533.4	650	419	78.5	419	3.28:1:0.06	1,386	3.3	0.3909
11	163.3	199	129	78.9	129	1.00:1:0.00	424	3.3	0.4308
12	137.0	167	97	70.6	97	3.50:1:0.00	312	3.2	0.9057
13	449.6	548	306	68.1	306	3.42:1:0.33	999	3.3	0.2447
14	652.7	795	548	84.0	548	4.76:1:0.24	1,773	3.2	0.3177
Total	6,448.5	7,854	5,286	82.0	5,286	4.79:1:0.20	17,497	3.3	0.2700
Farmland									
15	805.3	1,048	736	91.4	736	2.49:1:0.22	2,052	2.8	0.3052
16	561.4	731	398	70.8	398	3.71:1:0.57	1,730	4.3	0.3259
17	854.7	1,112	752	88.0	752	3.20:1:0.43	2,842	3.8	0.7433
18	867.0	1,128	655	75.6	655	1.95:1:0.15	1,998	3.1	0.2683
19	656.5	854	559	85.1	559	3.90:1:0.25	1,751	3.1	0.1899
20	442.1	575	279	63.2	279	3.64:1:0.09	1,219	4.3	0.2204
21	1,007.8	1,311	854	84.8	854	2.84:1:0.32	3,559	4.1	0.4294
22	268.6	349	247	92.0	247	2.38:1:0.15	972	3.9	0.2055
23	503.9	655	403	80.0	403	2.79:1:0.16	1,574	3.9	0.2742
24	425.5	553	365	85.9	365	4.73:1:0.36	1,246	3.4	0.2581
25	421.2	548	381	90.6	381	3.40:1:0.27	1,101	2.9	0.1893
26	218.6	285	172	78.6	172	3.29:1:0.14	559	3.3	0.1237
27	379.8	494	290	76.4	290	6.00:1:0.57	1,107	3.8	0.2252
28	322.3	419	236	73.3	236	6.80:1:1.00	1,058	4.5	0.7810
29	867.0	1,128	645	74.3	645	3.79:1:0.21	2,944	4.6	0.5520
30	1,119.0	1,456	881	78.7	881	2.25:1:0.15	4,115	4.7	0.5675
Total	9,720.6	12,646	7,854	80.8	7,854	3.04:1:0.26	29,868	3.8	0.3285

- The Farmland rifle harvest of 7,854 deer (Table 8) was slightly higher than 1988 but continued to be well below the long-term average, as well as harvest levels from the early 1980's that exceeded 10,000 deer annually (Table 9). Habitat loss continues to be a major factor limiting population growth and consequently, harvest levels in many Farmland zones. WMZ 30, 21, 17, 15, 18, 29 and 19 supported the highest harvests with over 500 deer taken in each zone. These harvests represented a slight change from 1988 by declining in WMZ 15, 16 and 18 and increasing in WMZ 30, 29 and 19.

Table 9. White-tailed deer regular rifle harvest for the highest harvest zones[a] in Saskatchewan, 1984-89.

WMZ	1985	1986	1987	1988	1989	WMZ	1985	1986	1987	1988	1989
1	485	582	562	678	596	34	310	804	366	719	951
2	410	593	622	747	645	37	525	1,593	995	1,420	1,998
4	475	720	685	751	661	39	485	1,318	411	838	1,182
5						41	485	460	696	655	827
6	410	900	592	582	559	45	445	699	796	774	822
14	400	1,032	540	573	548	46	585	1,058	1,036	953	1,203
15	650	789	511	921	736	54	380	603	625	866	720
17	225	534	285	692	752	56	320	836	1,172[b]	1,458[b]	2,073[b]
18	485	704	385	751	655	59	265	831	1,171[b]	1,277[b]	1,595[b]
19	320	741	474	472	559	67	345	503	1,161[b]	1,326[b]	1,600[b]
21	560	587	570	705	854						
29	600	688	592	540	645						
30	565	778	581	669	881						
32	915	704	444	829	811						

[a]WMZ with more than 500 deer harvested during the regular rifle season.
[b]Both a 1st and 2nd regular either-sex licence available.

- The Parkland rifle harvest of 13,613 deer (Table 10) was considerably higher than 1988 and similar to the high harvest levels characteristic of the early 1980's (Table 9). Most Parkland zones have experienced an increase in populations as a result of several mild winters. Higher deer populations have resulted in an increased sport harvest but some of the harvest has shifted away from traditional areas in southeastern Saskatchewan to central and northwestern Parkland zones. WMZ 37, 46, 39, 34, 41, 45 and 32 represented the highest harvest zones in the Parkland area with over 800 deer taken in each zone.
- The Forest Fringe rifle harvest of 2,595 deer (Table 10) was lower than 1988 but similar to harvests reported in 1984, when revision of the WMZ structure created this particular ecozone (Table 9). The highest harvest occurred in WMZ 54, 52, 55 and 53 located near Prince Albert and Meadow Lake.

Table 10. Parkland and Forest Fringe white-tailed deer rifle harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Parkland									
31	839.1	994	645	76.8	645	1.77:1:0.31	2,240	3.5	0.8882
32	1,142.6	1,354	811	71.0	811	3.03:1:0.29	2,858	3.5	1.0243
33	956.7	1,133	714	74.7	714	2.50:1:0.63	2,353	3.3	0.6060
34	1,160.9	1,375	951	81.9	951	3.83:1:0.23	3,454	3.6	0.6413
35	730.1	865	607	83.1	607	3.43:1:0.48	2,374	3.9	0.9083
36	725.5	860	532	73.3	532	6.75:1:0.42	2,036	3.8	0.3927
37	2,285.2	2,707	1,998	87.4	1,998	3.22:1:0.23	7,967	3.9	0.7041
38	671.0	795	500	74.5	500	3.63:1:0.26	2,283	4.6	0.3561
39	1,333.3	1,579	1,182	88.6	1,182	2.66:1:0.45	4,910	4.2	0.6458
40	444.3	526	338	76.2	338	3.07:1:0.36	1,601	4.7	0.2957
41	1,088.4	1,289	827	76.0	827	2.44:1:0.24	3,707	4.5	0.5140
42	961.0	1,139	763	79.4	763	4.00:1:0.38	3,830	5.0	0.5167
43	417.4	494	242	57.9	242	3.10:1:0.30	1,418	5.9	0.2140
44	875.1	1,037	709	81.0	709	2.94:1:0.19	2,998	4.2	0.6549
45	1,079.2	1,279	822	76.2	822	2.89:1:0.16	4,217	5.1	0.5502
46	1,464.4	1,735	1,203	82.2	1,203	3.76:1:0.52	6,172	5.1	1.0358
47	1,065.8	1,262	768	72.1	768	3.41:1:0.48	4,169	5.4	0.7289
Total	17,239.7	20,424	13,613	79.0	13,613	3.14:1:0.34	58,587	4.3	0.5960
Forest Fringe									
48	225.6	317	150	66.7	150	6.67:1:1.67	1,069	7.1	0.4224
49	271.3	381	199	73.3	199	6.75:1:1.25	1,424	7.2	0.5944
50	347.6	489	242	69.6	242	4.25:1:0.37	1,714	7.1	0.5141
51	256.2	360	193	75.5	193	2.67:1:0.33	1,080	5.6	0.3786
52	504.4	709	478	94.8	478	2.17:1:0.42	1,977	4.1	0.6786
53	340.0	478	279	82.1	279	3.36:1:0.36	1,461	5.2	0.5271
54	787.5	1,107	720	91.4	720	3.43:1:0.32	3,476	4.8	0.6102
55	355.6	500	333	93.7	333	4.67:1:1.22	1,692	5.0	0.4514
Total	3,088.3	4,341	2,595	84.0	2,595	3.46:1:0.52	13,892	5.4	0.5294

- The Forest rifle harvest of 9,294 deer (Tables 11 and 12) was substantially higher than 1988 and the highest harvest on record in the past decade (Table 9). Liberalized season dates and a two deer bag limit were implemented in most Forest zones as a result of above normal deer populations and contributed to the higher harvest estimates. WMZ 56, 59 and 67 represented the preferred hunting locations with over 1,000 deer taken in each zone.

4. Selective Harvest Strategies

- Although the majority of the white-tail zones have either-sex season structures, special selective harvest strategies were implemented in WMZ 2, 6, 11 and 14 (subzone), 31 and 32 (subzone) in 1989 to reduce populations by increasing the antlerless segment of the harvest.

Table 11. Forest 1st licence white-tailed deer rifle harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
56	996.5	1,558	731	73.3	731	2.67:1:0.39	5,641	7.7	1.1933
57	622.1	972	457	73.4	457	2.75:1:0.45	3,100	6.8	0.9370
58	192.3	301	140	72.6	140	1.67:1:0.22	940	6.7	0.4188
59	810.6	1,268	671	82.8	671	3.16:1:0.72	5,238	7.8	0.8825
60	196.1	306	118	60.3	118	5.00:1:0.67	956	8.1	0.2442
61	41.4	64	32	77.9	32	1.50:1:0.50	226	7.1	0.0742
62	130.5	204	64	49.4	64	1.75:1:0.25	693	10.9	0.1564
63	264.3	414	161	61.0	161	5.25:1:1.00	1,536	9.5	0.3096
64	157.9	247	75	47.6	75	3.00:1:0.67	709	9.5	0.1989
65	24.2	38	5	22.2	5	5.37:1:0.00	70	14.0	0.0107
66	130.5	204	107	82.3	107	1.71:1:0.14	505	4.7	0.0448
67	773.0	1,209	602	77.8	602	3.12:1:0.54	4,276	7.1	0.4929
68	257.9	403	188	72.9	188	2.30:1:0.20	1,434	7.6	0.3450
69	154.7	242	156	100.0	156	3.33:1:0.50	677	4.3	0.0873
70	14.0	21	5	38.5	5	0.00:1:0.00	204	40.8	0.0240
71	3.2	5	5	100.0	5	5.37:1:0.00	11	2.2	0.0006
72	7.0	11	0	0.0	0	0.00:1:0.00	38	—	0.0020
73	17.2	27	16	93.8	16	0.50:1:0.00	59	3.7	0.0013
Total	4,793.4	7,494	3,535	73.7	3,535	2.78:1:0.46	26,312	7.4	0.1592

Table 12. Forest 2nd licence white-tailed deer rifle harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
56	1,831.5	2,016	1,342	73.3	1,342	1.83:1:0.45	7,108	5.3	1.5036
57	998.7	1,099	789	79.0	789	1.91:1:0.40	3,662	4.7	1.1069
58	306.2	337	169	55.1	169	2.67:1:0.50	1,369	8.1	0.6098
59	1,286.7	1,416	924	71.8	924	1.44:1:0.26	4,977	5.4	0.8385
60	373.6	411	223	59.6	223	1.00:1:0.06	1,396	6.2	0.3566
61	103.9	115	74	71.4	74	0.57:1:0.00	270	3.6	0.0887
62	159.1	175	101	63.6	101	12.00:1:2.00	600	5.9	0.1354
63	367.5	405	270	73.4	270	1.12:1:0.18	1,302	4.8	0.2623
64	134.9	148	81	60.0	81	1.75:1:0.25	384	4.7	0.1078
65	18.2	20	0	0.0	0	0.00:1:0.00	47	—	0.0072
66	244.8	270	202	82.6	202	2.50:1:0.25	769	3.8	0.0682
67	1,286.7	1,416	998	77.6	998	3.19:1:0.44	4,478	4.5	0.5162
68	379.7	418	297	78.2	297	2.17:1:0.42	1,261	4.2	0.3033
69	343.2	378	290	84.5	290	1.25:1:0.44	1,059	3.7	0.1366
Total	7,834.7	8,625	5,759	73.5	5,759	1.86:1:0.35	28,680	4.9	0.3849

- In WMZ 2, an antlerless harvest was required to reduce deer populations depredating on haystacks and irrigated alfalfa along the Frenchman River system. The season was held in conjunction with the primitive weapon and November 6 to 18 mule deer seasons and resulted in a harvest of 188 deer (Table 13). Less than 20 per cent of the mule deer hunters drawn for the zone purchased an antlerless white-tailed deer licence suggesting that, although the season had some landowner relations value, it did little to reduce deer populations in the problem areas. A similar season was implemented in 1986 and 1987 but it only had a temporary impact on the deer population.

Table 13. Antlerless season white-tailed deer rifle harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
2	225.3	227	188	83.3	188	0.00:1:0.42	415	2.2	0.0390
6	208.8	211	184	88.3	184	0.00:1:0.40	362	1.9	0.0864
11	39.2	40	23	58.8	23	0.00:1:0.40	86	3.7	0.0870
14	42.5	43	23	54.3	23	0.00:1:2.50	69	3.0	0.0124
31-32	341.1[a]	392	208	64.0	208	0.00:1:0.43	567	2.7	0.1067
	440.0[b]	440	280	64.0	280	0.00:1:0.43	756	2.7	—
Total	1,279.9	1,353	906	68.8	906	0.00:1:0.76	2,255	2.7	0.0663

[a]Includes only hunters who purchased a special antlerless licence.
[b]Includes hunters taking antlerless deer on unused 1st and 2nd regular licences.

- In WMZ 6, an antlerless harvest was used to reduce populations that were depredating on landowner haystacks and field crops. Approximately 35 per cent of the eligible WMZ 6 mule deer licence holders purchased antlerless licences for the primitive weapons and November 6 to 18 season dates and harvested 184 animals (Table 13), compared to 100 deer in 1988 and 338 deer in 1986 when the season was first implemented. Although the interest in antlerless white-tails is not very high, local landowners indicate that the small harvest is controlling antlerless deer populations in the problem depredation areas. In comparison, the 1989 either-sex harvest of 559 deer declined slightly from 1988, with a harvest structure of 11.7 bucks per doe, considerably higher than the Grassland average of 4.8 bucks per doe (Table 8).
- A special subzone was created in the western portion of WMZ 11 and 14 in 1987 to reduce antlerless deer populations that were depredating on irrigated alfalfa crops along the South Saskatchewan and Red Deer River systems. In 1989 antlerless licences were available to all WMZ 11 and 14 mule deer licence holders for the archery, muzzleloader and November 6 to 18 rifle season dates. The antlerless harvest was 46 deer, down from 97 deer in 1988, and harvests will need to increase if field crop damage is to be reduced to a manageable level along the two river systems (Table 13).

- Another special subzone was also created in that portion of WMZ 31 and 32, south of Highway No. 361 and east of Highway No. 9, in 1989 to reduce antlerless deer populations depredating on field crops and haystacks. Hunters were allowed to purchase an antlerless licence or utilize their unused 1st or 2nd regular either-sex licences during the December 3 to 8 season. The majority of 746 hunters who participated in the season utilized their 1st or 2nd licence, harvesting 488 deer during the week long season. Although the season reduced depredation problems, landowners report that populations remain relatively high in the subzone area as a result of the mild 1989-90 winter.

5. Primitive Weapon Season Harvest

- In 1989, changes were made in the hunter questionnaire survey analysis in an attempt to obtain more accurate information on primitive weapon hunt activity and harvest. Currently, hunters are allowed to use their white-tailed deer licence in the archery, muzzleloader and rifle seasons, provided they use the appropriate weapon, and this procedure has made it difficult to assign hunt activity and harvest to each weapon type when producing provincial statistics. The 1989 hunt activity and harvest estimates are, therefore, not directly comparable to statistics from previous years but, in our opinion, provide a more realistic assessment of participation by primitive weapon hunters.
- During the archery season, 1,144 hunters harvested 337 deer for a success rate of 29 per cent (Tables 14 to 17, inclusive). Hunters spent 22 days/animal or 7,538 days in the field, although most archers generally take only five days to hunt. The archery harvest structure from the hunter questionnaire survey information was 2.84 bucks:doe:0.30 fawns. The Forest and Parkland ecozones received the heaviest harvest pressure. Archers accounted for 4 per cent of the total days spent in the field by all white-tail hunters in 1989.

Table 14. Grassland white-tailed deer archery harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1	21.6	27	11	50.8	11	2.00:1:0.00	128	11.6	0.0154
2	17.4	22	2	10.5	2	1.83:1:0.00	102	51.0	0.0096
4	17.4	22	4	21.1	4	0.00:1:0.00	165	41.3	0.0203
5	13.0	16	0	0.0	0	0.00:1:0.00	95	–	0.0159
6	27.4	35	5	20.0	5	5.49:1:0.00	177	35.4	0.0423
7	2.9	4	0	0.0	0	0.00:1:0.00	15	–	0.0077
8	10.1	13	2	18.2	2	1.83:1:0.00	35	17.5	0.0102
9	17.4	22	4	21.1	4	0.00:1:3.66	121	30.3	0.0352
10	27.4	35	9	33.3	9	9.15:1:0.00	117	13.0	0.0330
12	13.0	16	2	14.1	2	1.83:1:0.00	66	33.0	0.1915
13	33.1	42	7	22.1	7	1.00:1:0.00	112	16.0	0.0273
14	46.1	59	9	19.8	9	0.67:1:0.00	223	24.2	0.0400
Total	246.8	313	55	22.2	55	2.11:1:0.22	1,356	24.7	0.0209

Table 15. Farmland white-tailed deer archery harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
15	10.4	13	7	70.2	7	1.00:1:0.00	68	9.7	0.0101
16	15.0	18	2	12.2	2	1.83:1:0.00	57	28.5	0.0107
17	16.5	20	4	22.2	4	1.83:1:1.83	112	28.0	0.0292
18	23.8	29	4	15.4	4	3.66:1:0.00	196	13.5	0.0263
19	13.4	16	2	13.7	2	0.00:1:0.00	49	24.5	0.0054
20	58.2	71	16	28.3	16	2.00:1:0.00	503	31.4	0.0909
21	20.9	26	4	17.5	4	0.00:1:0.00	165	41.3	0.0196
22	10.4	13	0	0.00	0	0.00:1:0.00	71	—	0.0151
23	17.9	22	4	20.4	4	3.66:1:0.00	124	31.0	0.0217
24	13.4	16	0	0.0	0	0.00:1:0.00	113	—	0.0235
25	13.4	16	4	27.4	4	3.66:1:0.00	112	28.0	0.0192
26	6.0	7	0	0.00	0	0.00:1:0.00	49	—	0.0112
27	7.5	9	0	0.00	0	0.00:1:0.00	37	—	0.0074
28	10.4	13	0	0.00	0	0.00:1:0.00	59	—	0.0432
29	31.3	38	5	17.5	5	2.00:1:1.00	209	41.8	0.0391
30	79.0	97	16	20.8	16	1.67:1:1.00	757	47.3	0.1045
Total	347.4	426	68	19.5	68	1.92:1:0.17	2,680	39.4	0.0295

Table 16. Parkland and Forest Fringe white-tailed deer archery harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Parkland									
31	24.5	26	4	14.9	4	3.66:1:0.00	177	44.2	0.0704
32	14.1	15	9	64.9	9	1.00:1:0.50	51	5.6	0.0184
33	14.1	15	4	26.0	4	0.00:1:2.00	113	7.6	0.0292
34	12.3	13	2	14.9	2	1.83:1:0.00	73	36.5	0.0136
35	5.3	5	2	34.5	2	1.83:1:0.00	16	8.0	0.0063
36	7.0	7	4	52.6	4	3.66:1:0.00	13	3.3	0.0025
37	54.5	57	9	16.8	9	4.00:1:0.00	434	48.2	0.0383
38	12.3	13	2	14.9	2	0.00:1:0.00	68	34.0	0.0106
39	26.3	27	11	41.7	11	10.98:1:0.00	174	15.8	0.0229
41	15.7	16	5	34.9	5	5.49:1:0.00	117	23.4	0.0162
42	12.3	13	2	14.9	2	1.83:1:2.00	95	47.5	0.0128
43	15.7	16	2	11.6	2	0.00:1:0.00	110	55.0	0.0166
44	7.0	7	0	0.00	0	0.00:1:0.00	29	—	0.0064
45	12.3	13	0	0.00	0	0.00:1:0.00	82	—	0.0107
46	15.7	16	5	34.9	5	2.00:1:0.00	121	24.2	0.0203
47	14.1	15	5	39.0	5	5.49:1:0.00	95	19.0	0.0166
Total	263.1	274	66	25.0	66	3.86:1:0.29	1,769	26.8	0.0180
Forest Fringe									
48	4.9	7	0	0.0	0	0.00:1:0.00	31	—	0.0123
49	3.7	5	0	0.0	0	0.00:1:0.00	22	—	0.0092
50	4.9	7	0	0.0	0	0.00:1:0.00	33	—	0.0099
51	6.2	9	0	0.0	0	0.00:1:0.00	57	—	0.0199
52	6.2	9	0	0.0	0	0.00:1:0.00	75	—	0.0257
53	8.6	13	2	21.3	2	1.83:1:0.00	66	33.0	0.0238
54	7.3	11	4	50.0	4	1.83:1:1.83	51	12.8	0.0090
55	8.6	13	4	42.6	4	3.66:1:0.00	53	13.3	0.0142
Total	50.5	75	9	18.1	9	7.32:1:1.83	388	43.1	0.0148

Table 17. Forest 1st and 2nd licence white-tailed deer archery harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1st Regular									
56	5.1	11	0	0.0	0	0.00:1:0.00	75	—	0.0159
57	5.1	11	2	35.7	2	1.83:1:0.00	44	22.0	0.0133
58	0.9	2	0	0.0	0	0.00:1:0.00	4	—	0.0016
59	6.0	13	4	60.6	4	3.66:1:0.00	64	16.0	0.0108
64	0.9	2	0	0.00	0	0.00:1:0.00	7	—	0.0021
67	11.9	26	9	76.9	9	4.00:1:0.00	112	12.4	0.0129
68	1.6	4	0	0.0	0	0.00:1:0.00	13	—	0.0031
69	4.2	9	4	87.0	4	3.66:1:0.00	33	8.3	0.0042
Total	35.9	77	18	51.0	18	9.00:1:0.00	351	19.5	0.0021
2nd Regular									
56	26.8	30	15	55.6	15	14.92:1:0.00	112	7.5	0.0237
57	26.8	30	7	27.8	7	7.46:1:0.00	104	14.9	0.0316
58	26.8	30	15	55.6	15	1.00:1:0.00	75	5.0	0.0332
59	13.4	15	15	100.0	15	0.00:1:0.00	112	7.5	0.0189
62	6.7	7	0	0.00	0	0.00:1:0.00	22	—	0.0050
63	13.4	15	0	0.00	0	0.00:1:0.00	75	—	0.0150
66	6.7	7	0	0.00	0	0.00:1:0.00	15	—	0.0013
67	53.0	60	52	98.6	52	0.49:1:0.00	380	7.3	0.0438
69	6.7	7	7	100.00	7	0.00:1:0.00	15	2.1	0.0019
Total	180.5	201	62.0	62.0	112	0.75:1:0.13	910	8.1	0.0122

- During the muzzleloader season, 917 hunters harvested 394 deer for a success rate of 43 per cent (Tables 18 to 21, inclusive). Hunters spent nine days/animal or 3,406 days in the field. The muzzleloader harvest structure, based on questionnaire survey results, was 1.96 bucks:doe:0.24 fawns, indicating heavier pressure on the antlerless component of the population than either archery or rifle season hunters. The Farmland and Forest ecozones received the heaviest harvest pressure. Individuals hunting only with muzzleloaders accounted for 2 per cent of the total days spent in the field by all white-tail hunters in 1989.
- Although the hunter questionnaire survey results suggest a decline in both archery and muzzleloader hunting in 1989, field reports indicated that primitive weapon hunting was actually becoming more popular and the discrepancies in hunter numbers may simply be the result of changes to the questionnaire analysis. However, over 90 per cent of white-tail hunters continued to use a rifle as their preferred weapon type and consequently, hunted during the November season dates.

Table 18. Grassland white-tailed deer muzzleloader harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1	14.6	19	6	39.0	6	3.80:1:1.90	46	7.7	0.0055
2	17.5	23	13	76.1	13	2.50:1:0.00	48	3.7	0.0045
3	4.4	6	0	0.0	0	0.00:1:0.00	8	—	0.0018
4	5.9	8	6	96.8	6	5.71:1:0.00	29	4.8	0.0035
5	5.9	8	4	64.5	4	1.00:1:0.00	13	3.3	0.0022
6	17.5	23	8	43.5	8	0.33:1:0.00	65	8.1	0.0154
8	1.5	2	0	0.0	0	0.00:1:0.00	6	—	0.0017
9	11.6	15	8	65.6	8	2.00:1:1.00	49	6.1	0.0144
10	10.3	13	0	0.0	0	0.00:1:0.00	30	—	0.0086
11	1.5	2	2	100.00	2	1.90:1:0.00	2	1.0	0.0019
12	5.9	8	2	32.3	2	1.90:1:0.00	10	5.0	0.0276
13	21.9	29	17	78.3	17	6.00:1:2.00	59	3.5	0.0144
14	26.2	34	11	43.5	11	0.25:1:0.25	95	8.6	0.0170
Total	144.7	188	76	52.6	76	1.92:1:0.42	458	6.0	0.0071

Table 19. Farmland white-tailed deer muzzleloader harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
15	15.6	19	4	24.4	4	3.80:1:0.00	30	7.5	0.0045
16	10.8	13	4	35.1	4	3.80:1:0.00	67	16.8	0.0125
17	14.1	17	4	27.0	4	3.80:1:0.00	55	13.8	0.0144
18	15.6	19	6	36.6	6	0.50:1:0.00	49	8.2	0.0066
19	3.0	4	0	0.0	0	0.00:1:0.00	13	—	0.0014
20	48.3	59	29	59.1	29	4.00:1:0.00	202	6.9	0.0364
21	12.6	15	0	0.0	0	0.00:1:0.00	61	—	0.0073
22	6.3	8	0	0.0	0	0.00:1:0.00	38	—	0.0080
23	20.4	25	10	46.7	10	3.00:1:0.00	65	6.5	0.0113
24	14.1	17	4	27.0	4	1.00:1:0.00	49	12.3	0.0102
25	1.5	2	2	100.0	2	1.90:1:0.00	4	2.0	0.0007
26	4.8	6	0	0.0	0	0.00:1:0.00	25	—	0.0055
27	3.0	4	2	62.5	2	0.00:1:0.00	11	5.5	0.0023
28	10.8	13	2	17.5	2	0.00:1:0.00	28	14.0	0.0281
29	31.2	38	10	30.5	10	1.50:1:0.00	105	10.5	0.0196
30	42.2	51	15	36.0	15	3.00:1:0.00	177	11.8	0.0244
Total	254.3	310	89	35.2	89	2.54:1:1.08	989	11.1	0.0109

Table 20. Parkland and Forest Fringe white-tailed deer muzzleloader harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Parkland									
31	10.5	11	4	36.4	4	1.00:1:0.00	30	7.5	0.0121
32	8.7	10	0	0.0	0	0.00:1:0.00	21	—	0.0075
33	1.7	2	0	0.0	0	0.00:1:0.00	4	—	0.0010
34	19.2	21	6	29.7	6	5.71:1:0.00	68	11.3	0.0127
35	14.1	15	4	27.0	4	1.90:1:1.90	53	13.3	0.0204
36	7.0	8	0	0.0	0	0.00:1:0.00	25	—	0.0048
37	26.2	29	11	43.5	11	1.00:1:0.00	101	9.2	0.0089
38	17.5	19	4	21.7	4	1.00:1:0.00	57	14.3	0.0089
39	15.8	17	10	60.2	10	1.50:1:0.00	63	6.3	0.0083
40	14.1	15	2	13.5	2	0.00:1:0.00	48	24.0	0.0088
41	17.5	19	10	54.3	10	1.00:1:0.50	67	6.7	0.0092
42	10.5	11	2	18.2	2	1.90:1:0.00	40	20.0	0.0054
43	7.0	8	0	0.0	0	0.00:1:0.00	32	—	0.0049
44	15.8	17	4	24.1	4	3.80:1:0.00	53	13.3	0.0116
45	15.8	17	2	12.0	2	0.00:1:0.00	80	40.0	0.0104
46	12.2	13	0	0.0	0	0.00:1:1.00	80	—	0.0134
47	7.0	8	4	54.1	4	3.80:1:0.00	29	7.3	0.0050
Total	220.6	240	61	27.6	61	1.73:1:0.18	850	13.9	0.0086
Forest Fringe									
48	8.6	11	2	22.2	2	1.90:1:0.00	30	15.0	0.0120
49	4.2	6	2	45.5	2	1.90:1:0.00	30	15.0	0.0127
50	7.0	10	6	81.1	6	2.00:1:0.00	21	3.5	0.0063
51	11.2	15	4	33.9	4	0.00:1:1.00	53	13.3	0.0187
52	9.9	13	2	19.2	2	1.90:1:0.00	29	14.5	0.0098
53	5.7	8	4	66.7	4	3.80:1:0.00	19	4.8	0.0069
54	7.0	10	6	81.1	6	0.50:1:00.0	17	2.8	0.0030
55	1.3	2	0	0.0	0	0.00:1:0.00	11	—	0.0030
Total	55.0	74	25	45.0	25	2.00:1:0.25	211	8.4	0.0080

Table 21. Forest 1st and 2nd licence white-tailed deer muzzleloader harvest, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
1st Regular									
56	16.5	19	8	46.0	8	3.00:1:0.00	80	10.0	0.0169
57	6.7	8	6	85.7	6	2.00:1:0.00	23	3.83	0.0069
58	3.2	4	2	58.8	2	0.00:1:0.00	4	2.0	0.0017
59	13.3	15	8	57.1	8	0.00:1:3.00	48	6.0	0.0080
60	1.7	2	0	0.00	0	0.00:1:0.00	4	—	0.0010
61	1.7	2	0	0.00	0	0.00:1:0.00	4	—	0.0013
62	3.2	4	4	100.0	4	0.00:1:0.00	30	7.5	0.0069
63	8.4	10	8	90.9	8	0.50:1:0.00	57	7.1	0.0115
64	3.2	4	2	58.8	2	1.90:1:0.00	10	5.0	0.0027
67	18.3	21	13	72.9	13	6.00:1:0.00	44	3.4	0.0050
68	3.2	4	0	0.00	0	0.00:1:0.00	21	—	0.0050
69	3.2	4	0	0.00	0	0.00:1:0.00	10	—	0.0012
Total	82.7	95	59.8	1.44	49	1.44:1:0.33	333	6.8	0.0020

Table 21 (Continued). Forest 1st and 2nd licence white-tailed deer muzzleloader harvest, 1989.

2nd Regular									
56	19.9	21	14	69.0	14	6.86:1:6.86	48	3.4	0.0102
57	19.9	21	21	100.00	21	2.00:1:0.00	62	2.9	0.0187
59	26.1	27	21	78.9	21	1.00:1:1.00	137	6.5	0.0231
61	13.0	14	0	0.0	0	0.00:1:0.00	27	—	0.0090
62	19.9	21	7	34.5	7	6.86:1:0.00	110	15.71	0.0248
63	13.0	14	7	52.6	7	0.00:1:0.00	41	5.9	0.0083
67	26.1	27	14	52.6	14	6.86:1:0.00	41	2.9	0.0047
68	6.9	7	0	0.0	0	0.00:1:0.00	69	—	0.0165
Total	144.7	151	82	56.9	82	2:00:1:0.67	535	6.5	0.0072

6. Provincial Harvest Structure

Hunter Questionnaire Survey

- The 1989 provincial harvest structure was estimated to be 2.84 bucks:doe:0.37 fawns, a small decline from 1988 which was the highest buck per doe ratio in the harvest for the past decade (Table 22). Fawn per doe ratios were lower than ratios reported in 1986 to 1988, but higher than 1985. Populations in that year may have experienced high preseason fawn mortality because of the poor physical condition of pregnant does, following the 1984-85 severe winter in southern Saskatchewan.

Table 22. Provincial white-tailed deer harvest structure, 1986-89[a].

	1986 Harvest Ratio Males:Females:Young	1987 Harvest Ratio Males:Females:Young	1988 Harvest Ratio Males:Females:Young	1989 Harvest Ratio Males:Females:Young
Grassland	2.07:1:0.39	2.80:1:0.35	3.84:1:0.30	3.53:1:0.31
Farmland	2.00:1:0.33	3.05:1:0.34	3.33:1:0.32	3.02:1:0.28
Parkland	3.07:1:0.48	3.11:1:0.47	3.44:1:0.40	2.98:1:0.38
Forest Fringe	2.40:1:0.38	2.74:1:0.58	3.32:1:0.91	3.45:1:0.57
Forest	2.30:1:0.38	2.34:1:0.40	2.22:1:0.49	2.12:1:0.46
Northern Shield	0.00:1:0.00	0.00:1:0.00	0.00:1:0.00	0.00:1:0.00
Provincial Total	2.38:1:0.40	2.81:1:0.41	3.15:1:0.39	2.84:1:0.37

[a]Special seasons that influence the either-sex harvest structure:
1989 - Antlerless WMZ 2, 6, 11 & 14 (Grassland); and 31 & 31 (Parkland)
1988 - Antlerless WMZ 6, 11 & 14 (Grassland); antlered WMZ 37, 38 & 39 (Parkland)
1987 - Antlerless WMZ 2, 6, 11 & 14 (Grassland); antlered WMZ 37, 38 & 39 (Parkland)
1986 - Antlerless WMZ 2 & 6 (Grassland); antlered WMZ 37 & 38 (Parkland).

- High buck per doe ratios, ranging from 2.98 to 3.53 bucks:doe, were reported for all but the Forest and Northern Shield ecozones. The large buck harvest, particularly in the 2.5+ year old age classes, suggested that mild winters over the past several years have contributed to higher fawn survival and growing populations. Saskatchewan hunters appear to be selecting for bucks, particular mature males relative to their abundance in the population.

- The Grassland ecozone supported the highest ratio at 3.54 bucks:doe, slightly lower than 3.84 bucks:doe reported in 1988, but consistent with high ratios evident in the harvest structure from the 1970's and early 1980's. With a harvest structure of 2.98 bucks:doe, the Parkland harvest declined but remained similar to ratios observed prior to high fawn and yearling mortality during the 1984-85 severe winter. The Farmland harvest indicated a similar decrease in buck to doe ratios as the Parkland ecozone, decreasing from 3.33 to 3.02 bucks:doe but remained well above the 1986 ratio of 2.00 bucks:doe. At 2.12 bucks:doe, the Forest harvest ratio was slightly lower than previous years, but this ecozone has traditionally supported a smaller buck harvest than more southern areas of the province.
- In the Grassland, Farmland and Parkland ecozones, fawn per doe ratios ranged from 0.28 to 0.38 fawns:doe and were slightly lower than harvest ratios reported from 1986 to 1988. However, in view of the high buck harvest, it was expected that fewer fawns would be taken by sport hunters, despite good fawn production and growing populations. Fawns comprised a larger proportion of the Forest Fringe and Forest deer harvest, but bucks are generally harder to locate in forest habitat and hunters, consequently, shoot more antlerless animals.

Biological Sample Collection Program

- In 1989, the lower jaw collection program, implemented largely on a volunteer basis by members of the Saskatchewan Wildlife Federation and other wildlife interest groups, produced a sample of 779 whitetail jaws of known sex and age class from WMZ 15 to 18, 24, 31 to 39 in southern Saskatchewan (Table 23). Each branch was paid $5.00 for each usable sample in an effort to obtain more complete information on the sex and age structure of the provincial deer harvest.

Table 23. Sex and age composition of the 1989 Saskatchewan white-tailed deer harvest from lower jaw samples collected in WMZ 15 to 18, 24, 31 to 39.

Frequency Percent Row Pct Col Pct	Age										
	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	Total
Female	64	39	49	37	17	6	6	7	5	3	233
	8.22	5.01	6.29	4.75	2.18	0.77	0.77	0.90	0.64	0.39	29.91
	27.47	16.74	21.03	15.88	7.30	2.58	2.58	3.00	2.15	1.29	
	58.72	20.31	28.16	22.29	26.56	16.67	42.86	43.75	100.00	100.00	
Male	45	153	125	129	47	30	8	9	0	0	546
	5.78	19.64	16.05	16.56	6.03	3.85	1.03	1.16	0.00	0.00	70.09
	8.24	28.02	22.89	23.63	8.61	5.49	1.47	1.65	0.00	0.00	
	41.28	79.69	71.84	77.71	73.44	83.33	57.14	56.25	0.00	0.00	
Total	109	192	174	166	64	36	14	16	5	3	779
	13.99	24.65	22.34	21.31	8.22	4.62	1.80	2.05	0.64	0.39	100.00

- The 1989 harvest structure was estimated to be 2.96 bucks:doe:0.64 fawns compared to 3.68 bucks:doe:0.69 fawns in 1988, 3.68 bucks:doe:0.79 fawns in 1987, 2.34 bucks:doe:0.92 fawns in 1986 and 1.15 bucks:doe:0.49 fawns in 1985. Although the buck per doe ratios from the jaw sample were slightly higher than the hunter questionnaire estimates, the ratios indicated a similar trend in harvest structure. The fawn age class constituted a smaller portion of the 1989 jaw sample than in 1988. This trend was consistent with hunter questionnaire survey ratios that suggested that, as more bucks become available in the population, there is less demand for antlerless animals, particularly young of the year.
- Compared to previous years, samples from WMZ 15 to 17 and 31 to 34 indicated that fawns comprised 13 per cent of the harvest, slightly higher than 1988 but significantly lower than 1985 and 1986 which followed the severe 1984-85 winter (Table 24, Figure 4). This particular winter resulted in high mortality on young animals and the mature buck cohort and subsequently, the 1985 and 1986 seasons put additional hunting pressure on other age classes, particularly fawns and adult females. Yearlings comprised 25 per cent of the harvest in 1989, lower than 1988, but substantially higher than 1985. This single age class accounts for a major portion of the harvest in most years and excellent recruitment, associated with mild winters since 1986, has meant that a high number of yearlings, particularly bucks, have been available to deer hunters. However, as these yearlings move through the age classes, hunters tend to select for more mature bucks (2.5+ years) and consequently, this segment of the population comprised 45 per cent of the harvest. A slight increase in the adult female portion of the harvest (17%) can be attributed to the antlerless deer season in WMZ 31 and 32 subzone in 1989.

Table 24. Percent harvest by age class of white-tailed deer from lower jaw samples collected by the department and the Saskatchewan Wildlife Federation, 1984-89.

Age Class	1984 S.E. Sask.[a]	1985 S.E. Sask.	1986 S.E. Sask.	1987 S.E. Sask.	1987 Prov.	1988 S.E. Sask.	1988 Prov.	1989 S.E. Sask.	1989 WMZ 37-39
% fawns	15%	21%	24%	14%	16%	11%	13%	13%	11%
% yearlings	27%	18%	28%	34%	35%	36%	34%	25%	25%
% mature bucks[b]	38%	26%	29%	37%	36%	39%	41%	45%	51%
% mature females[b]	20%	35%	20%	14%	13%	14%	12%	17%	13%
% mature deer[b]	58%	61%	48%	52%	49%	53%	53%	61%	64%
# Samples	972	520	685	487	2,218	544	2,663	779[c]	329

[a]S.E. Sask. includes WMZ 15, 16, 17, 31,32, 33, 34 combined.
[b]Includes age classes 2.5+ years.
[c]Includes antlerless harvest from December 4 to 9, special season in WMZ 31 and 32.

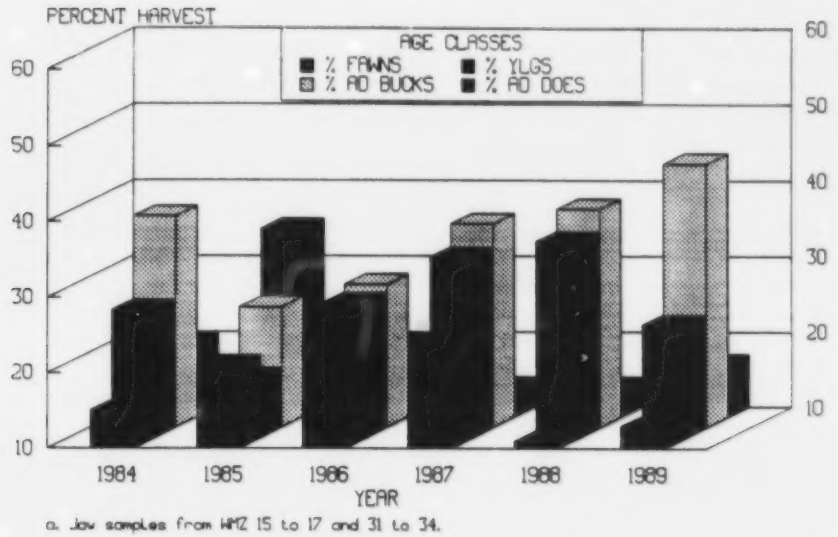


Figure 4. White-tailed deer harvest by age class from southeastern Saskatchewan based on lower jaw samples, 1984-89.

- The harvest structure differed slightly in WMZ 37, 38 and 39 where the change from a bucks only (first week) and either-sex (second week) selective harvest strategy in 1988 to an either-sex (entire season) harvest in 1989 resulted in fewer fawns and adult females and more mature bucks being harvested than southeastern Saskatchewan (Table 24). A combination of more restrictive seasons on the female segment of the population (1984 to 1988) and a series of mild winters with good recruitment, resulted in higher overall populations, particularly in WMZ 39, and hunters, observing lots of deer, appeared to have selected for mature bucks. With less restrictive seasons, local residents also decided to hunt closer to home and the harvest increased dramatically in these zones in 1989.
- The information suggests that with mild winters, minimal winter mortality and excellent recruitment, populations in southeastern Saskatchewan have improved dramatically and now approach levels observed in the early 1980's. With growing deer numbers, hunters have taken the opportunity to select for mature bucks. Antlerless animals are less preferred and consequently, their proportions in the harvest structure remain at more traditional levels.

B. POPULATION STATUS

The status of the white-tailed deer population in Saskatchewan is determined annually from information provided by aerial density surveys, preseason wildlife observations, weather severity measurements, habitat condition evaluations, biological sample collections, deer necropsies, dead deer searches and field reports from the general public, landowners and department biological staff. Deviations from the established norm are examined to assess whether populations are changing because of management strategies or other environment factors.

1. Aerial Density Surveys

- Adequate snow cover and good observer visibility during the 1989-90 winter made it possible to conduct aerial surveys and estimate deer densities on some traditional survey blocks. Surveys were conducted in the Parkland and Forest Fringe ecozone, specifically WMZ 37 (Wroxton), 39 (Parkerview) and 54 (Thunder Creek Hills). Moose surveys conducted in WMZ 33 (Moose Mountain Park), 67 (Divide Forest) and 68 (Bronson Forest) also provided some minimum estimates of deer densities, but confidence intervals are extremely wide and the estimates should be used with caution.
- The survey information suggested a general trend towards higher deer populations in most survey blocks (Table 25 and Figures 5 and 6). The Parkerview (WMZ 39) estimate of 2,597 ±18 per cent animals indicated densities of 1.5 deer/km², almost double the 1985-86 estimate and similar to 1983, prior to implementation of the selective harvest strategies. Field reports and higher harvest levels in 1989 confirm that populations have increased in response to a combination of mild winters and removal of the bucks/either-sex harvest strategies. The Thickwood Hills (WMZ 54) estimate of 1,413 ±18 per cent animals showed a similar increase with densities of 1.0 deer/km², approximately 30 per cent higher than previous estimates in 1988-89 and 1982-83. Populations in the northern Parklands continue to grow in response to mild winters and above average production and harvest pressure has increased accordingly, providing additional recreation opportunity for resident hunters.
- Of particular concern is the Wroxton (WMZ 37) survey block where the estimate of 722 ±18 per cent animals indicated densities of only 0.6 deer/km², a small decline from 0.8 deer/km² in 1988-89 and similar to densities observed in 1986-87 when the selective bucks/either-sex harvest strategies were still in effect. However, the harvest increased dramatically in 1989, from approximately 1,100 deer (1984-88 mean harvest) when the selective harvest strategies were still in place to 2,000 animals. Hunters appeared to stay at home to hunt and consequently, may have put sufficient pressure on the deer population in the Wroxton portion of WMZ 37 to be reflected in the winter survey results.

Table 25. White-tailed deer population estimates based on stratified random block aerial survey sampling, 1979-90.

Survey Block	WMZ	Area km²	Survey Block Population Estimate/Year 1979-1982 ±95% CI[a]	Deer/ km²	1982-1983 ±95% CI	Deer/ km²	1983-1984 ±95% CI	Deer/ km²	1984-1985 ±95% CI	Deer/ km²
Alida	32	1,492	—	—	5,495 ± 16%	3.7	—	—	2,892 ± 24%	1.9
Bronson Forest[b]	68	3,186	—	—	—	—	—	—	—	—
Cumberland South[b]	60	—	—	—	—	—	—	—	—	—
Divide[b]	67	3,385	—	—	—	—	—	—	—	—
Duck Mountain[b]	37	479	—	—	382 ± 24%	0.8	—	—	—	—
Dundurn	21 & 30	1,480	—	—	—	—	—	—	1,175 ± 16%	0.8
Eastend	6	1,370	—	—	—	—	—	—	—	—
Forest Fringe	50,51,62, 63,64	4,311	—	—	—	—	562 ± 63%	0.13	—	—
Fort a la Corne[c]	50									
Kipling	33	1,494	—	—	513 ± 18%	0.4	—	—	—	—
Last Mtn. Lake	21	2,505	—	—	—	—	—	—	559 ± 32%	0.2
Manitou	46	2,129	—	—	2,325 ± 17%	1.1	—	—	2,392 ± 17%	1.1
Marie Hill	46	1,119	—	—	808 ± 16%	0.7	—	—	—	—
Melville	37	5,885	—	—	—	—	—	—	1,988 ± 10%	0.4
Moose Mtn.[b]	33	681	1,691 ± 18%	2.5	1,670 ± 18%	2.5	1,303 ± 16%	1.90	1,118 ± 33%	1.6
Moosomin	34	932	—	—	1,432 ± 8%	1.6	—	—	974 ± 29%	1.0
Parkerview	39	1,678	—	—	2,470 ± 14%	1.5	—	—	2,227 ± 14%	1.3
Parkman	34	1,865	—	—	2,462 ± 54%	1.4	—	—	2,107 ± 18%	1.1
Pleasantdale	42	2,949	1,106 ± 10%	0.4	—	—	—	—	963 ± 12%	0.3
Porcupine Forest[b]	56,57	—	—	—	—	—	—	—	—	—
Sask. River (Leader)	11 & 14	855	—	—	—	—	—	—	—	—
Sask. River	13 & 14	4,994	—	—	—	—	—	—	2,494 ± 19%	0.5
Sonningdale	45	1,958							2,062 ± 24%	1.1
Souris	31	3,149	—	—	—	—	—	—	4,051 ± 19%	1.3
Thickwood Hills West	54	1,492	—	—	1,093 ± 24%	0.7	—	—	—	—
Val Marie	2	1,119	—	—	—	—	—	—	—	—
Wroxton	37	1,176	—	—	483 ± 10%	0.4	—	—	1,413 ± 21%	1.2
Yorkton	39	3,107	2,792 ± 14%	0.9	—	—	—	—	—	—

Survey Block	1985-1986 ±95% CI[a]	Deer/ km²	1986-1987 ± 95% CI	Deer/ km²	1987-1988 ± 95% CI	Deer/ km²	1988-89 ± 95% CI	Deer/ km²	1989-90 95% CI	Deer/ km²
Alida	1,874 ± 11%	1.3	—	—	—	—	2,539 ± 19%	1.4	—	—
Bronson Forest[b]	—	—	3,130 ± 22%	1.0	—	—	—	—	6,164 ± 18%	1.9
Cumberland South[b]	—	—	809 ± 29%	0.4	—	—	—	—	—	—
Divide[b]	—	—	—	—	—	—	—	—	3,479 ± 28%	1.0
Duck Mountain[b]	—	—	337 ± 28%	0.7	—	—	—	—	—	—
Dundurn	1,480	—	—	—	—	—	—	—	—	—
Eastend	827 ± 18%	0.9	989 ± 20%	0.7	—	—	—	—	—	—
Forest Fringe	—	—	—	—	—	—	—	—	—	—
Fort a la Corne[c]	—	—	—	—	338 ± 30%	0.24	—	—	—	—
Kipling	—	—	—	—	—	—	—	—	—	—
Last Mtn. Lake	—	—	—	—	760 ± 17%	0.35	—	—	—	—
Manitou	—	—	2,072 ± 20%	1.0	—	—	—	—	—	—
Marie Hill	—	—	—	—	881 ± 23%	0.79	—	—	—	—
Melville	—	—	—	—	—	—	—	—	—	—
Moose Mtn.[b]	1,122 ± 15%	1.6	1,540 ± 23%	2.3	—	—	2,413 ± 27%	3.5	1,456 ± 29%	2.1
Moosomin	648 ± 14%	0.7	—	—	—	—	1,860 ± 12%	2.0	—	—
Parkerview	1,388 ± 17%	0.8	—	—	—	—	—	—	2,597 ± 18%	1.5
Parkman	1,729 ± 14%	0.9	—	—	—	—	—	—	—	—
Pleasantdale	1,094 ± 21%	0.4	—	—	—	—	1,975 ± 20%	0.7	—	—
Porcupine Forest[b]	—	—	5021 ± 16%	1.4	—	—	3,706 ± 32%	1.0	—	—
Sask. River (Leader)	—	—	589 ± 21%	0.7	—	—	—	—	—	—
Sask. River					—	—	—	—	—	—
Souris	—	—	—	—	—	—	3,434 ± 17%	1.1	—	—
Thickwood Hills West	—	—	—	—	1083 ± 15%	0.70	—	—	1,413 ± 18%	1.0
Touchwood	—	—	—	—	—	—	1,452 ± 20%	—	—	—
Val Marie	—	—	504 ± 14%	0.5	—	—	—	—	—	—
Wroxton	985 ± 19%	0.8	699 ± 14%	0.6	—	—	895 ± 18%	0.8	722 ± 18%	0.6
Yorkton	—	—	—	—	—	—	—	—	—	—

[a]Confidence intervals on the population estimate.

[b]Quadrat surveys designed primarily for moose census.

[c]Quadrat surveys designed primarily for elk census.

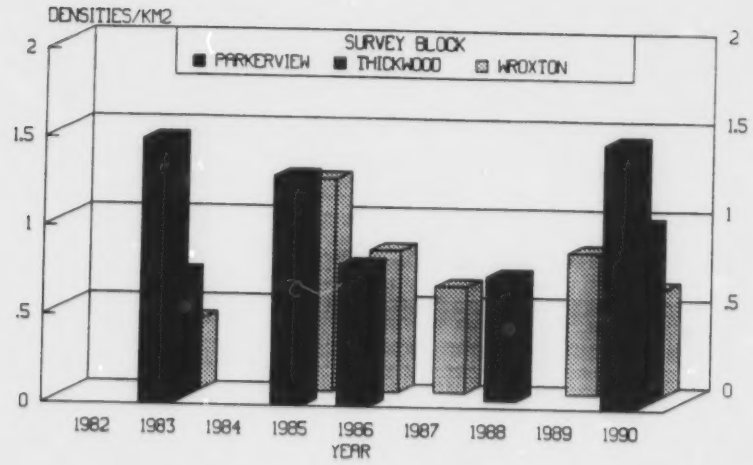


Figure 5. White-tailed deer population estimates based on stratified random block aerial survey sampling, 1982-90. (Confidence limits range ±10 per cent to 24 per cent).

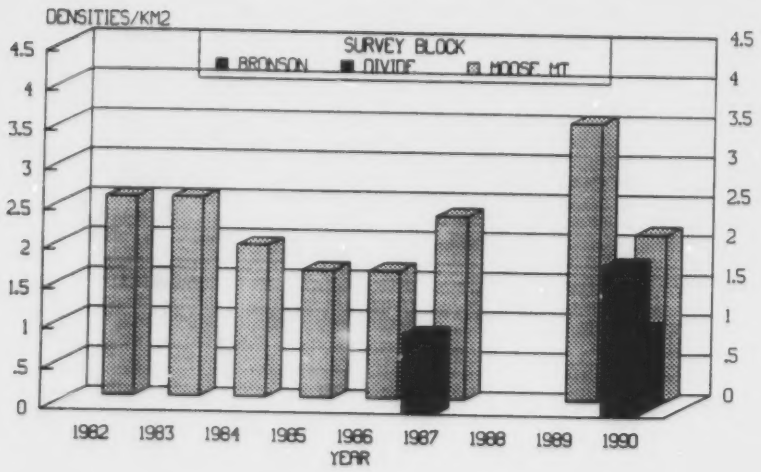


Figure 6. White-tailed deer population estimates based on stratified random block aerial survey sampling, 1982-90. (Aerial surveys designed for moose census; Confidence limits range ±15 per cent to 29 per cent).

- On the moose survey blocks, the Bronson Forest (WMZ 68) estimate of 6,164 ±18 per cent animals indicated densities of 1.9 deer/km², almost double the 1.3 deer/km² observed in 1986-87 and higher than many southern survey blocks. Field reports confirm that populations continue to grow rapidly in the Forest ecozone in response to mild winters in recent years. Deeper snow cover this past winter may result in some winter mortality but at the time the survey was flown, populations remained well above traditional Forest densities. The Divide Forest (WMZ 67) estimate of 3,479 ±28 per cent animals indicated densities of only 1.0 deer/km², substantially lower than for the adjacent Bronson Forest and more in line with its mixed-wooded habitat composition. The survey data, however, supported field reports that populations in the Forest, remain above traditional levels, despite deeper snow cover and related winter mortality.
- The Moose Mountain Park (WMZ 33) estimate of 1,456 ±29 per cent animals indicated densities of 2.1 deer/km², considerably lower than the 1988-89 estimate and close to estimates of 2.5 deer/km² from the early 1980's. The 1989-90 estimate, however, was higher than 1985 or 1986 when populations were depressed following the severe 1984-85 winter. Populations appear to be responding slowing but WMZ 33 harvests have also increased in recent years with the return of hunters to southeastern Saskatchewan and the population decline may be a reflection of this additional harvest.

2. Preseason Wildlife Observations

- Between September 1 and November 30, 1989, 26,467 deer were classified by sex and age in an effort to determine the preseason herd structure of the provincial deer population (Table 26). The information, referred to as the Co-operative Wildlife Management Study (CWMS), is collected annually by approximately 600 volunteer observers from the general public, wildlife interest groups and department field staff.

Table 26. Provincial white-tailed deer population structure based on preseason field observations, September to November, 1986-89.

Ecological Zone	Males:Female[a]				Fawns:Female				Sample Sizes (n)			
	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
Grassland	0.33	0.37	0.38	0.42	0.88	0.96	0.92	1.19	5,134	3,246	2,503	1,799
Farmland	0.33	0.39	0.46	0.43	0.91	0.87	0.76	0.85	6,072	4,599	5,187	4,425
Parkland	0.44	0.38	0.44	0.40	0.86	1.00	1.06	1.07	11,815	9,890	10,450	12,373
Fringe	0.42	0.41	0.39	0.36	0.88	1.04	1.01	1.03	2,419	2,249	2,723	3,272
Forest	0.45	0.43	0.42	0.42	0.80	0.92	0.94	0.86	3,600	3,833	3,882	4,597
All Zones	0.40	0.39	0.43	0.41	0.87	0.96	0.95	0.99	29,040	23,817	24,745	26,467

[a]Males:Females = (yearling males + mature males + unclassified males)/total females.

- Total observations increased from 7 per cent from 1988, with increases in the Forest Fringe (20%), Forest (18%), and Parkland (18%) ecozones and a decline in observations in the Grassland (28%) and Farmland (15%) ecozones. With approximately the same number of individuals participating in the program as in 1988, the changes in observation numbers may simply be the result of individual effort to collect data, however, co-operators reported that populations appear to be growing in most areas of the province.
- Provincially, preseason estimates ranged from 0.85 to 1.19 fawns per doe, suggesting good fawn production throughout all ecozones except the Farmland zones (Table 26). The Grassland ratios have increased steadily since the 1985 drought year with the exception of 1988 when ratios once again declined in response to higher post-partum fawn mortality associated with drought conditions (Figure 7). The Farmland ratios have fluctuated since 1984 but with the exception of a few zones, have not increased to the same degree as the Grassland ratios. Summer droughts, particularly in 1988, appear to be responsible for higher post-partum fawn mortality and subsequent recruitment into the older age classes. In 1989, a higher percentage of twins were also observed in the Grassland and Farmland ecozones than in 1988 (Table 27). These data suggest that the 1988 drought did impact fawn production, but indicated that production generally improved and in the case of the Grassland zones returned to normal in 1989.

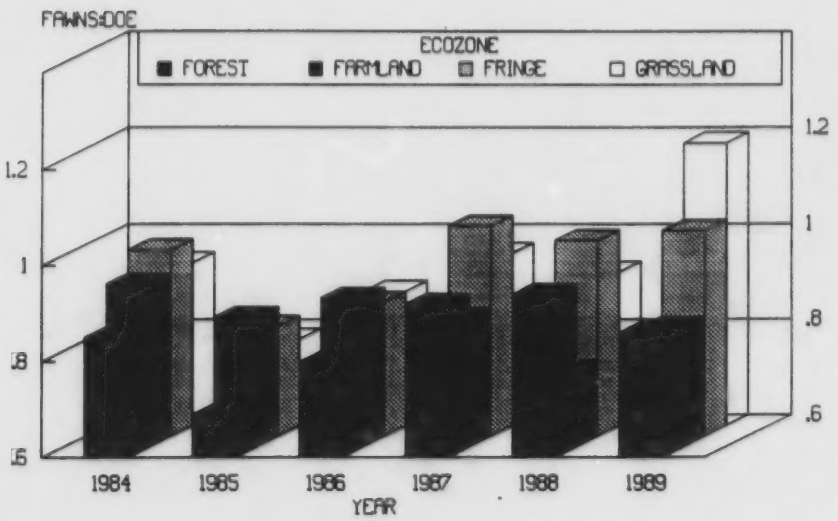


Figure 7. White-tail deer fawn production based on preseason field observations, September to November, 1984-89.

- In the Forest ecozone, fawn per doe ratios have improved dramatically since 1985 and although they are traditionally lower than in other ecozones, the higher ratios contributed to population growth (Figure 7).
- In the Parkland ecozone, fawn per doe ratios exceeded 1 fawn:doe, with the exception of some northern Parkland zones, and have increased steadily since the 1985 (Figure 8). It is believed the severe 1984-85 winter stressed the doe population and resulted in higher post-partum fawn mortality during the 1985 summer. In recent years, mild winters and good productivity associated with high post-partum fawn survival have contributed to growing populations throughout most Parkland zones. The fawn:doe ratios in the northern Parklands appears to have declined in 1989 but it is unknown if lower ratios were indicative of lower productivity rates, climatic factors or simply fewer observations.

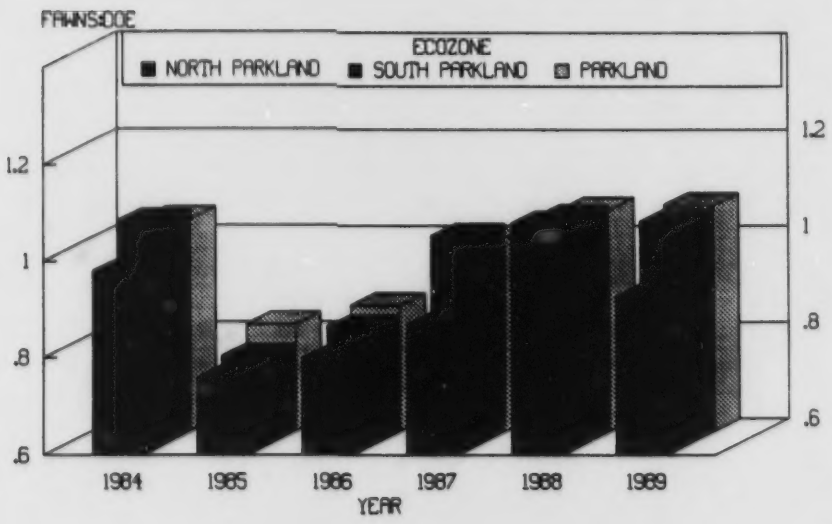


Figure 8. White-tailed deer fawn production based on preseason field observations, September to November, 1984-89.

- Buck per doe estimates ranged from 0.36 to 0.43 bucks:doe throughout the province, but remained relatively unchanged from 1988 (Table 26). The percentage of yearling to mature bucks in the population remained high although this was not reflected in the 1989 harvest because of a hunter bias towards shooting mature bucks (Table 28).
- On an ecozone basis, many individual zones had small sample sizes and the 1989 preseason observations have to be used with caution as ratios may not accurately reflect the population structure for that zone. To ensure better accuracy, only those zones with greater than 300 observations were used for comparison.

Table 27. Percentage of white-tail does with and without fawns based on preseason field observations, September to November, 1986-89.

Ecological Zone	% of Does With and Without Fawns															
	1986				1987				1988				1989			
	Single	Twins	Triplets	Without Fawns	Single	Twins	Triplets	Without Fawns	Single	Twins	Triplets	Without Fawns	Single	Twins	Triplets	Without Fawns
Grassland	56	39	5	40	49	47	4	38	56	41	2	37	48	48	3	23
Farmland	55	40	5	39	54	42	4	42	60	37	3	46	53	43	4	44
Parkland	55	41	3	42	50	44	6	35	51	45	4	30	53	44	2	28
Fringe	52	46	3	42	47	47	6	35	53	42	5	33	53	40	7	33
Forest	52	46	2	47	48	47	5	41	52	44	4	39	54	43	3	42
All Zones	55	42	4	42	50	45	5	38	54	43	4	36	53	44	3	34

Table 28. Percentage of yearling and mature males in the provincial white-tailed deer population based on preseason field observations, September to November, 1986-89.

Ecological Zone	1986			1987			1988			1989		
	% Yearlings[a]	% Mature[b]	Sample Size (n)	% Yearlings	% Mature	Sample Size (n)	% Yearlings	% Mature	Sample Size (n)	% Yearlings	% Mature	Sample Size (n)
Grassland	49	51	811	55	45	492	57	43	405	59	41	281
Farmland	41	59	887	46	54	778	47	53	1,056	50	50	799
Parkland	37	63	2,250	42	58	1,527	47	53	1,822	50	50	1,947
Fringe	33	67	435	47	53	360	48	52	440	54	46	488
Forest	45	55	700	49	51	670	55	45	689	55	45	778
All Zones	41	59	5,083	46	54	3,827	49	51	4,412	52	48	4294

[a]Antler classes A, B and C.
[b]Antler classes D, E and F.

- The Grassland fawn:doe ratios fluctuated from 0.94 to 1.19 fawns:doe in WMZ 1, 2 and 14, but generally increased slightly from 1988 levels (Table 29). Department staff, conducting spot light surveys on the west side of WMZ 14, observed 1.31 rather than 1.12 fawns:doe in the preseason population, suggesting that productivity was higher than reported by the CWMS. The Frenchman River area of WMZ 2 appeared to experience some fawn mortality because of drought conditions as spotlight surveys reported only 0.74 fawns:doe, slightly lower than 0.94 fawns:doe observed in the entire zone by the CWMS.

Table 29. Grassland white-tailed deer population structure based on preseason field observations, September to November, 1986-89.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
1	0.29	0.30	0.24	0.42	0.88	0.87	0.84	1.11	959	366	470	235
2	0.33	0.64	0.38	0.45	0.73	1.09	325	0.94	596	286	286	241
3	0.27	0.25	–	0.13	1.35	–	7	0.63	32	3	3	28
4	0.24	0.18	0.22	0.27	1.19	0.81	543	1.20	896	246	246	146
5	0.28	0.29	0.21	0.23	0.90	1.21	155	1.18	343	210	188	106
6	0.42	0.39	0.65	–	0.92	1.10	239	–	621	305	374	–
7	0.37	0.29	0.65	0.61	1.12	1.06	172	0.98	482	351	138	106
8	0.41	0.24	0.33	0.52	1.12	0.96	79	1.33	89	137	62	60
9	0.23	0.71	0.83	0.41	1.04	0.72	80	0.93	105	66	46	68
10	0.66	0.29	0.88	–	0.82	0.94	100	–	240	59	48	–
11	0.18	0.00	0.50	–	2.00	1.00	29	–	42	3	10	–
12	0.27	0.43	–	–	1.12	–	26	–	25	148	1	–
13	0.39	0.32	0.27	0.33	1.27	0.81	141	1.17	402	220	221	120
14	0.43	0.43	0.40	0.41	0.84	0.78	161	1.12	301	787	410	440
Total	0.33	0.37	0.38	0.42	0.88	0.96	0.92	1.19	5,134	3,246	2,503	1,799

[a]Males:Female = (yearling males + mature males + unclassified males)/total females.

- In the Farmland ecozone, ratios ranged from 0.93 to 1.14 fawns:doe in WMZ 15, 17, 20, 21, 29 and 30, a increase from 0.58 to 1.08 fawns:doe observed in the same zones in 1988 (Table 30). Spotlight surveys in WMZ 19 indicated 1.07 fawn:doe. The 1988 ratios were the lowest on record and suggested that the 1988 severe drought in southern Saskatchewan contributed to high summer fawn mortality.
- The Parkland fawn:doe ratios, ranging from 0.82 to 1.30 fawns:doe in WMZ 31 to 35, 37 to 49, 43 and 45 to 47 suggested excellent fawn production and survival in 1989 (Table 31). Spotlight surveys in WMZ 31 and 32 provided estimates of 1.09 fawn:doe; similar to ratios reported by the CWMS. Slightly lower ratios were observed in WMZ 42 and 43, but it is unknown if the lower rates were due to observer error or some other factor.

Table 30. Farmland white-tailed deer population structure based on preseason field observations, September to November, 1986-89.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
15	0.26	0.27	0.35	0.35	1.08	1.15	1.14	1.05	1,012	316	232	659
16	0.40	0.29	0.42	0.34	0.95	1.02	0.99	1.17	363	395	284	191
17	0.35	0.35	0.46	0.45	0.87	0.90	0.89	0.90	337	506	557	335
18	0.31	0.33	0.98	0.25	0.77	0.93	0.79	0.60	108	97	155	89
19	0.37	0.40	0.52	0.52	0.74	0.62	0.76	0.81	574	237	392	273
20	0.60	0.50	0.57	0.40	0.86	0.65	0.59	0.39	379	567	664	615
21	0.33	0.42	0.39	0.35	1.00	0.99	0.93	0.98	833	823	705	720
22	0.43	0.47	0.88	0.88	0.57	1.19	1.14	0.88	14	125	154	66
23	0.27	0.38	0.44	0.41	1.02	1.08	0.69	1.04	1,522	604	776	179
24	0.44	0.53	0.64	0.56	0.88	0.65	0.64	0.81	132	74	235	64
25	0.29	0.43	0.42	0.61	0.71	0.76	0.67	0.94	48	46	94	196
26	0.17	0.58	0.46	0.61	0.87	0.88	0.60	0.81	61	118	103	176
27	0.23	0.16	0.32	0.56	0.38	0.45	0.80	0.81	85	71	93	128
28	0.57	0.29	–	0.30	1.39	0.71	–	1.00	68	14	13	23
29	0.32	0.48	0.36	0.43	0.36	0.58	0.64	0.93	225	390	365	383
30	0.46	0.19	0.28	0.50	0.78	0.79	0.54	0.98	311	216	365	325
Total	0.33	0.39	0.46	0.43	0.91	0.87	0.76	0.85	6,072	4,599	5,187	4,425

[a]Males:Female = (yearling males + mature males + unclassified males)/total females.

Table 31. Parkland white-tailed deer population structure based on preseason field observations, September to November, 1986-89.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
31	0.30	0.22	0.23	0.32	1.02	1.03	0.92	1.30	946	1,295	800	1,023
32	0.43	0.41	0.47	0.27	0.94	0.96	1.01	1.02	673	362	533	610
33	0.32	0.35	0.41	0.36	0.73	0.97	1.08	1.16	759	560	921	1,038
34	0.44	0.40	0.49	0.41	0.81	1.11	1.28	1.32	1,559	831	1,352	1,530
35	0.52	0.45	0.37	0.39	0.83	1.22	1.21	1.11	978	736	196	422
36	0.36	0.58	0.56	0.40	0.59	0.76	0.99	0.60	119	129	275	198
37	0.38	0.39	0.42	0.34	0.85	1.02	1.18	1.11	2,317	1,635	1,662	2,406
38	0.61	0.39	0.44	0.46	0.68	1.12	0.86	0.82	327	430	519	855
39	0.57	0.42	0.50	0.42	1.12	1.10	1.16	1.16	1,251	1,426	1,259	1,369
40	0.69	0.50	0.48	0.86	0.94	0.74	0.80	1.26	268	488	439	327
41	0.41	0.40	0.52	0.66	1.04	1.19	1.45	0.83	309	311	193	286
42	0.50	0.41	0.39	0.44	0.68	0.68	0.64	0.62	524	415	414	408
43	0.46	0.18	0.33	0.32	0.83	0.85	1.01	0.74	160	167	213	336
44	0.32	0.46	0.37	0.64	0.64	0.86	1.82	1.31	145	130	156	106
45	0.53	0.37	0.41	0.42	0.80	0.74	0.97	1.10	804	320	710	627
46	0.51	0.21	0.50	0.44	0.65	0.87	0.91	0.83	242	239	448	502
47	0.40	0.53	0.64	0.53	0.86	1.04	1.01	0.76	434	416	360	330
Total	0.44	0.38	0.44	0.40	0.86	1.00	1.06	1.07	11,815	9,890	10,450	12,373

[a]Males:Female = (yearling males + mature males + unclassified males)/total females.

- Forest Fringe and Forest fawn:doe ratios, ranged from 0.78 to 1.32 fawns:doe and were similar to 1988 productivity estimates (Tables 32 and 33). These ecozones have experienced higher fawn production and survival for the past several years and the 1988 ratios were consistent with the department's impression that deer populations in the northern Forest areas were higher than normal.

Table 32. Forest Fringe white-tailed deer population structure based on preseason field observations, September to November, 1986-89.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
48	0.53	0.54	0.39	0.46	1.16	0.98	0.88	0.79	261	290	466	333
49	0.44	0.32	0.51	0.29	0.92	1.12	0.97	1.03	446	414	572	672
50	0.53	0.53	0.46	0.53	0.79	1.07	0.91	0.88	332	286	300	419
51	0.32	0.51	0.32	0.36	0.79	0.60	0.59	0.51	118	158	65	187
52	0.35	0.43	0.25	–	0.71	0.73	0.50	–	99	65	28	–
53	0.40	0.31	0.34	0.35	0.66	0.78	1.03	0.87	330	161	138	138
54	0.41	0.43	0.38	0.37	0.90	0.96	1.08	1.19	470	415	549	549
55	0.33	0.34	0.29	0.28	1.03	1.43	1.24	1.32	363	460	605	925
Total	0.42	0.41	0.39	0.36	0.88	1.04	1.01	1.03	2,419	2,249	2,723	3,272

[a]Males:Female = (yearling males + mature males + unclassified males)/total females.

Table 33. Forest white-tailed deer population structure based on preseason field observations, September to November, 1986-89.

	Males:Female[a]				Fawns:Female				Sample Size (n)			
WMZ	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
56	0.40	0.40	0.40	0.38	0.85	0.90	0.89	0.84	728	768	1384	1179
57	0.49	0.53	0.57	0.36	0.74	0.79	0.93	0.80	495	576	630	661
58	0.42	0.55	0.56	0.35	0.79	0.65	0.93	1.00	162	112	137	87
59	0.57	0.69	0.42	0.46	0.78	0.89	0.80	0.88	235	116	275	295
60	0.42	0.33	0.37	0.32	0.59	1.16	0.75	0.52	224	352	161	151
61	0.33	0.53	0.13	–	0.73	1.00	0.38	–	31	38	36	–
62	0.53	0.40	0.35	0.33	0.88	1.10	1.12	1.13	123	240	232	150
63	0.55	0.62	0.39	0.36	0.96	1.14	1.07	1.00	369	382	295	525
64	0.44	0.43	0.64	0.56	0.79	1.05	1.09	0.84	192	285	60	314
65	0.42	0.00	–	–	1.25	1.25	–	–	32	9	–	–
66	0.48	0.46	0.31	0.44	0.60	0.83	1.22	0.78	306	304	139	307
67	0.37	0.27	0.37	0.63	0.76	0.88	1.07	0.85	226	307	261	455
68	0.38	0.33	0.59	0.50	0.90	0.86	0.94	1.11	180	107	43	73
69	0.44	0.26	0.31	0.30	1.05	0.75	1.09	0.90	247	209	216	297
70	–	1.00	–	–	–	1.33	–	–	–	10	–	–
71	0.11	0.33	–	–	0.33	0.67	–	–	13	6	–	–
72	0.00	0.00	–	–	0.25	0.40	–	–	10	7	–	–
73	–	1.00	0.75	0.88	–	3.00	1.00	1.04	–	5	11	70
Total	0.45	0.43	0.42	0.42	0.80	0.92	0.94	0.86	3,600	3,833	3,882	4,597

[a]Males:Female = (yearling males + mature males + unclassified males)/total females.

3. Impact of Weather Severity

- Although most of the Grassland and Farmland ecozones and the southeastern portion of the Parkland ecozone received less summer precipitation than normal in 1989, conditions were far less severe than 1985 or 1988. With a few exceptions, summer weather conditions did not appear to be a major factor impacting overall population growth.
- Most areas of southern Saskatchewan experienced mild to normal winter conditions with moderate temperatures and below average snow cover during the 1989-90 winter. The Grassland and Farmland zones had some snow cover throughout part of the winter but not enough to impact deer daily movements or seasonal distribution. Some deer concentrated around feed stacks and more dense habitat cover, but few mortality or starvation problems were encountered by field staff. The southeast Parkland zones had very little snow cover and few depredation or mortality problems were reported, even in the high deer concentrations areas in WMZ 31 and 32.
- The eastern Parkland zones (WMZ 35 to 40) experienced some heavy snowfall late in February but winter deer mortality was minimal. Snow depths were normal throughout most of the Forest zones with the exception of forest areas in the vicinity of Hudson Bay. Snow cover was above average for most of the winter in WMZ 48, 49, 56 to 61 and resulted in high mortality on the 1988 fawn cohort. The Hudson Bay branch of the Saskatchewan Wildlife Federation provided feed to small groups of deer in the forest cutovers but the impact on overall Forest deer populations was minimal. With Forest deer populations currently at very high levels, winter mortality in these zones did not have a major impact on the 1990 deer harvest.
- During the 1988-89 winter, WMZ 31, the south half of WMZ 32 and parts of WMZ 15 and 16 experienced heavy snowfalls late in the winter, causing deer to yard up in dense habitat and around landowner feedstacks. Extensive intercept feeding was initiated by department staff in the Estevan, Carievale and Gainsborough areas to reduce damage to agricultural produce. Winter severity indices and necropsy and field reports indicated that, with the exception of the fawn cohort, mortality was similar to that experienced during a normal winter. Analysis of the 1989 jaw collection data from WMZ 31 and 32 supported this observation.
- Late winter necropsies conducted by department staff on approximately 50 road-killed deer from southern and northern Saskatchewan indicated normal body and femur fat depletion rates and most age classes were indicative of deer in good physical condition. Some of the necropsied fawns from northeastern Saskatchewan were in poor condition suggesting that mortality on this age class might have been higher than normal.

4. Population Status

- Provincial white-tailed deer populations, although not at the high levels experienced during the late 1960's and early 1970's, appeared to be stable or growing slowly. Habitat loss associated with changing agricultural practices and environmental conditions continue to be influencing factors.
- On a regional level, deer populations in southwest Grassland zones have increased over the past few years in response to mild winters. Season dates were liberalized accordingly. Drought conditions have had a small negative impact on fawn recruitment, but current populations appeared to be similar to 1989 levels.
- The Farmland zones supported below normal populations despite recent mild winters. Drought conditions have influenced fawn recruitment, but generally populations were below long-term levels because of the shortage of good habitat. Deer densities on prime whitetail habitat were similar to densities in the Parkland zones, but less of this type of habitat exists throughout the Farmland ecozone, resulting in overall lower populations. Populations were similar to 1989 levels.
- Deer densities in the southeastern Parkland zones continued to increase from depressed levels following the severe 1984-85 winter. Based on preseason observations, field reports and harvest data, these zones supported densities exceeding 1989 levels and levels were comparable to populations observed in the early 1980's. A combination of mild winters and selective harvest strategies have encouraged population increases in the eastern Parkland zones, but a high 1989 sport harvest (WMZ 37 and 39) and normal winter severity stabilized population growth. The northern Parkland zones supported good whitetail densities and based on aerial survey and field reports, populations exceeded 1989 levels.
- In the Forest Fringe and Forest ecozones, whitetail populations remained high, despite some mortality associated with the 1989-90 winter conditions. Forest deer have traditionally been subjected to higher winter mortality on a more frequent basis than southern deer populations, but until this year, winters were relatively mild and populations increased accordingly. Deer densities were similar to 1989 levels.

C. 1990 MANAGEMENT OBJECTIVES

1) With a minor exception, the primitive weapon, archery and muzzleloader seasons, were similar to the 1989 season structure. A muzzleloader season was implemented for Canadian and non-resident hunters in WMZ 56 to 76 and their bag limit for both archery and muzzleloader seasons was increased to two deer, similar to resident bag limits, to promote additional recreational opportunity.

2) In northern Saskatchewan, the early and late season structure, with a two deer bag limit, remained in effect for WMZ 56 to 61, 65, 66 and 69 for resident, Canadian resident and non-resident hunters. The late season hunt, with a two deer bag limit, continued in WMZ 62 to 64, 67 and 68 for all hunters. Some consideration was given to allowing an

early October season hunt in WMZ 62 to 64 but until zone boundaries are changed to reflect the actual Provincial Forest boundary, landowners oppose hunting pressure on their farmlands along the forest fringe while the crops are still in the field. The WMZ 70 to 76 season, with a one deer bag limit, continued to overlap with moose. The regulation requiring non-residents to use the services of a licensed guide or outfitter to hunt white-tailed deer in Saskatchewan has been well-received by outfitters and resident hunters and remained in effect.

3) In southern Saskatchewan, the two week either-sex November season was maintained in the Grassland, Farmland, Parkland and Forest Fringe ecozones. To accommodate resident hunters, the season was again delayed for a week and hunters were restricted to the southwestern and central parts of the province. Consideration was given to allowing Canadian residents to again hunt in WMZ 16, 17, 31 to 35 and 37 to 39 in southeastern Saskatchewan in response to growing deer populations but a negative reaction from resident hunters, who oppose additional pressure on the buck population and landowners, who are concerned about hunter densities on their land, was expected.

4) Antlerless harvest strategies were implemented in WMZ 7 and remained in effect for WMZ 2, 6 and subzones in 11/14 and 31/32. The bag limit, however, was increased to two deer per licence to encourage more interest in these special licences and increase harvest on populations in depredation areas. Hunters were directed to these areas through the media and letters, with maps, sent to mule deer hunters, designating areas with high deer populations. Various other options were considered in an attempt to increase the antlerless harvest in the zones. A proposal to allow regular season deer hunters to purchase an antlerless licence to harvest a second deer was considered too attractive, would place additional hunting pressure on mature bucks and reduce populations throughout the zone, rather than specific problem areas. An option that allowed hunters in these zones to choose one either-sex or two antlerless deer licences was considered but would not be popular with most hunters who desire an opportunity to hunt for bucks. A reduced $15 licence fee for antlerless deer, designed to encourage higher hunter participation was also considered, but was deemed unfeasible for 1990. The provincial licensing structure is currently under review by the department with possible changes for 1991 and a reduction of fees for one licence was considered impractical at this time.

- Antlerless whitetail seasons in WMZ 2, 6, 7 and the 11/14 subzone are designed to reduce haystack and field crop damage associated with high deer populations that cannot be controlled by the existing male skewed either-sex harvest. To regulate overall harvest, the purchase of the antlerless whitetail licence was restricted to either-sex and antlerless mule hunters drawn for WMZ 2, 6, 7, 11 and 14. Under this system, the antlerless whitetail licence was valid only in the zone for which they held a mule deer licence and only during the November 5 to 19 time period. The primitive weapon mule and white-tailed deer hunters also had the option to shoot antlerless deer during the September and October archery and muzzleloader seasons.

- Populations in the eastern half of WMZ 31 and southern portion of WMZ 32 continued to grow in response to mild winter conditions and good fawn survival. To assist in harvesting the growing antlerless component of the population, balance the herd structure and provide sport hunters with additional recreation opportunity in an area that normally experiences low hunter densities, the antlerless season east of Highway 9 and south of Highway 361 was continued in 1990. The season dates were December 3 to 8, immediately following the either-sex rifle season. Hunters had the opportunity to purchase an antlerless licence or hunt with their unused first or second either-sex licences, provided they took an antlerless white-tailed deer during this special season. The primitive weapon white-tailed deer hunters also had the option to shoot antlerless deer during the September and October archery and muzzleloader seasons.

5) Guided moose hunters, again had the opportunity to purchase an either-sex white-tailed deer licence and hunt during their moose season. The season included some dates between August 27 and October 20 that were not open for other white-tailed deer licence holders. These additional dates were required to accommodate those moose hunters that were already using the services of a licensed outfitter and desired to harvest a white-tailed deer while hunting moose. Only 400 guided moose licences were available for purchase and the additional white-tailed deer harvested during these extra season dates had minimal impact on the deer population.

6) Some PFRA pastures were again opened for primitive weapon hunting prior to removal of the cattle by pasture patrons. Primitive weapons deer hunting was allowed, with permission of the pasture manager, in portions of Brokenshell 1 and 2 (archery only), Battle River-Cutknife, Coteau, Elbow, Montrose, Rudy-Rosedale, Usborne and Wolverine pastures. All PFRA and Saskatchewan Agriculture and Food pastures, with the exception of some pastures designated as wildlife management units, were open for November rifle hunters once the cattle were removed and with permission from the pasture manager.

7) The Cypress Hills (West Block) Provincial Park was included in those areas designated open for archery, muzzleloader and rifle hunting in 1989. The West Block was open to primitive weapon and regular/antlerless mule deer hunters.

D. 1990 WHITE-TAILED DEER SEASON

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
White-tailed Deer Primitive Weapons (Sask. Residents Only	Zones 1 to 55, including Brokenshell No. 1 and No. 2, Elbow, Buckland, Fort a la Corne, Great Bend and Horsehide Lake Wildlife Management Units; Cypress Hills (West Block), Duck Mountain, Moose Mountain and Saskatchewan Landing Provincial Parks.	Archery Sept. 3 - Oct. 13 Muzzleloading Rifles Oct. 1 - Oct. 13	one white-tailed deer, either sex	• Archery hunting only in the Buckland Wildlife Management Unit. • The opening date in Cypress Hills (West Block), Duck Mountain, Moose Mountain and Saskatchewan Landing Provincial Parks is delayed until September 5. • Archery or muzzleloader hunters may purchase a separate antlerless white-tailed deer licence (2 deer bag limit) at department offices and select vendors, valid only in Zones 2, 6 and 7, and the specified portions of Zones 11 and 14, and 31 and 32.
	Zones 2, 6, 7 that portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta border and that portion of Zones 31 and 32 south of Highway No. 361 and east of Highway No. 9, including Cypress Hills (West Block) Provincial Park.	Archery Sept. 3 - Oct. 13 Muzzleloading Rifles Oct 1. - Oct. 13	two antlerless white-tailed deer	
White-tailed Deer Primitive Weapons (All Hunters)	Zones 56 to 69, including Leaf Lake Wildlife Management Unit; Greenwater Lake, Meadow Lake and Nipawin Provincial Parks; and Bronson Forest Recreation Site.	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Sept. 17 - Oct. 13	one white-tailed dear, either sex, per licences. Two licences available	• Second white-tailed deer either sex licences are valid only in Zones 56 to 69 and for Saskatchewan Residents only in the specified portions of Zones 31 and 31 during the Dec. 3 to Dec. 8 antlerless season. • **Note: The opening date in Greenwater Lake and Meadow Lake Provincial Parks and the Bronson Forest Recreation Site is delayed until September 5.** • **Non-residents of Canada must use the services of a licensed guide or outfitter.**
White-tailed Deer (Sask. Residents Only)	Zones 16, 17, 31 to 35, and 37 to 39, including Duck Mountain and Moose Mountain Provincial Parks	Nov. 19 - Dec. 1	one white-tailed deer, either sex	• **"Roads and Trails Only". Hunters in Zones 15 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails.** • "Antlerless White-tailed Deer" means a doe or 1990 fawn.
	That portion of Zones 31 and 32 south of Highway No. 361 and east of Highway No. 9	Dec. 3 - Dec. 8	two antlerless white-tailed deer	• Hunters may purchase a separate antlerless white-tailed deer licence (2 deer bag limit) or use their unfilled 1st or 2nd either sex white-tailed deer licence to harvest an antlerless white-tailed deer in the specified portions of Zones 31 and 32 during the Dec. 3 to Dec. 8 antlerless season.
	Zones 2, 6, 7 and that portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta Border (Zones 2, 6, 7, 11 and 14 either-sex and antlerless mule deer licence holders only) including Cypress Hills (West Block) Provincial Park.	Specified mule deer seasons between Nov. 5 and Nov. 17, inclusive	two antlerless white-tailed deer	• In Zones 2, 6, 7 and the specified portion of Zones 11 and 14, either sex and antlerless mule deer licence holders may purchase an additional antlerless white-tailed deer licence (2 deer bag limit) at department offices and select vendors upon proof of possession of a mule deer licence for Zones 2, 6, 7, 11 and 14.

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
White-tailed Deer (Sask. Residents and Canadian Residents)	Zones 1 to 15, 18 to 30, 36 and 40 to 55, including Brokenshell No. 1 and No. 2, Cookson, Estevan-Cambria, Elbow, Buckland, Fort a la Corne, Horsehide Lake, Last Mountain Lake and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Park	Sask. Residents Nov. 19 - Dec. 1 Canadian Residents Nov. 26 - Dec. 1	one white-tailed deer, either sex	• **Note: Primitive weapons only in Saskatchewan Landing Provincial Park and archery only in Buckland Wildlife Management Unit.** • **Hunters will be restricted to designated trails within the Cypress Hills (West Block) Provincial Park, Brokenshell No. 1 and No. 2 (community pastures), Cookson and Elbow Wildlife Management Units.** • **Hunters in Zones 15 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails.**
White-tailed Deer (All Hunters)	Zones 56 to 61, 65, 66 and 69, including Leaf Lake Wildlife Management Unit; Greenwater Lake, Meadow Lake and Nipawin Provincial Parks, including those portions of Nipawin Provincial Park in WMZ 63 and 64	Oct. 1 - Oct. 13 and Nov. 5 - Dec. 1	one white-tailed deer, either sex, per licence. Two licences available	• Second white-tailed deer licences are valid only in Zones 56 to 69 (all hunters) and for Saskatchewan Residents only in the specified portions of Zones 31 and 32 during the Dec. 3 to Dec. 8 antlerless season. • **Non-residents of Canada must use the services of a licensed guide or outfitter.** • Archery, Sept. 3 - Oct. 13. • Muzzleloading, Oct. 1 - Oct. 13.
	Zones 62 to 64, 67 and 68, including Nipawin Provincial Park and Bronson Forest Recreation Site	Nov. 5 - Dec. 1	one white-tailed deer, either sex, per licence. Two licences available	
	Zones 70 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Aug. 27 - Dec. 1 Archery, muzzle-loading and rifle	one white-tailed deer, either sex	

MOOSE

A. REVIEW OF 1989 HUNTING SEASONS

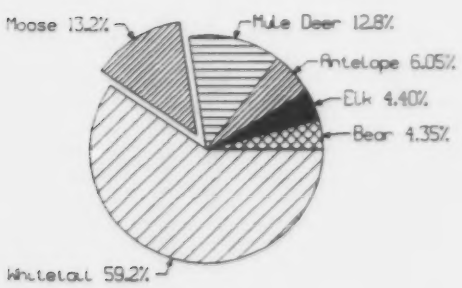
1. Licence Sales

- Total licence sales rose by less than 1 per cent from 11,652 in 1988 to 11,738 in 1989 (Tables 1 and 34). Hunter participation in moose hunting has remained relatively constant throughout the 1980's.
- The stable or slightly increasing moose population in northeastern Saskatchewan resulted in no increase in draw season licence quotas. Draw season quotas dropped 15 per cent owing to the closure of the season in WMZ 47, 55 and 68 combined, and a reduction of licences in Fort a la Corne.
- Bull-calf (regular) season licence sales have demonstrated variability from year to year. Recent trends suggest licence sales have been stable with few new moose hunters being attracted to the sport even with good recent harvests. The slight variability in licence sales from year to year is due to fall weather conditions and the status of crop harvest in the south.

Table 34. Provincial moose licence sales, 1985-89[a].

	1985	1986	1987	1988	1989	% Change
Draw	2,105	2,082	2,113	2,202	1,883	-14.5%
Bull-calf	8,125	9,363	8,653	9,181	9,557	+ 4.1%
Archery	38	31	43	34	46	+35.3%
Guided	239	208	217	235	252	+ 7.2%
Total	10,507	11,684	11,046	11,652	11,738	+0.7%

[a]All licence sales represent final sale figures as of June 26, 1990; however, the data analysis was based on projected figures available in mid-February, 1990.



2. Hunting Activity and Harvest

Provincial

- The most significant element of the moose season in 1989 was the fact that the early bull-calf season coincided with the last part of the rut as it did in 1988. Hunting during the rut resulted in high success rates which was also enhanced by good hunting conditions.
- Success during the early bull-calf season was 38 per cent as compared to 35 per cent during the late season. In contrast the success during the early draw season was 39 per cent as compared to 76 per cent during the late draw season. Hunters often complained about the poor hunting conditions experienced most years in the early draw season.

- The Big Game Hunter Questionnaire survey indicated that active hunters changed from 10,698 (1988) to 11,579 in 1989, an 8 per cent increase (Figure 9). The provincial harvest (Table 35) showed an approximate 17 per cent increase from 4,014 in 1988 to 4,706 in 1989. This is the second highest harvest recorded (5,152 in 1980) since the establishment of the present moose management system. Total days of recreation changed from 49,260 in 1988 to 51,488 in 1989, a 5 per cent increase.

Table 35. Moose sport harvest by licence type, 1984-89.

Licence	1985	1986	1987	1988	1989
Either sex Special (Draw)	653	910	1,067	1,144	1,121
Regular (Bull-calf)	1,413	2,554	2,309	2,768	3,471
Archery (Either sex)	2	65	5	2	14
Guided (Bull-calf)	90	93	unk 100?	unk 100?	unk
Total	2,158	3,563	3,481	4,014	4,706
% Hunter Success	22%	34%	37%	37%	41%

Northern Commercial Forest

- For the Forest and Forest Fringe draw seasons, 1,758 active hunters harvested 1,056 moose in 1989 as compared to 1,906 active hunters harvesting 1,011 moose in 1988. With a 60 per cent success rate, hunter days decreased from 8,077 in 1988 to 7,918 in 1989.
- In the Forest and Northern Shield bull-calf season, activity decreased from 9,637 hunters (1988) to 8,986 hunters (1989), but with an increase in the harvest from 2,443 in 1988 to 3,120 in 1989.
- In the Parkland (WMZ 43 and 47) and the Forest Fringe (WMZ 48, 49, 53 and 55), 644 active hunters harvested 337 moose in 1989 as compared to 847 active hunters harvesting 279 moose in 1989.

Southern Zones

i) Moose Mountain Provincial Park (WMZ 33)

- No hunting season in 1989.

ii) Cypress Hills (WMZ 6)

- The 25 licences issued in WMZ 6 (East Block) resulted in the harvest of 21 moose (84% success) and provided 75 recreation days during 1989.

iii) Thickwood Hills (WMZ 54)

- There was no season in WMZ 54 in 1989 as a result of a survey which revealed a drop from 0.33 moose/km² in 1987 to 0.08 moose/km² in January 1989.

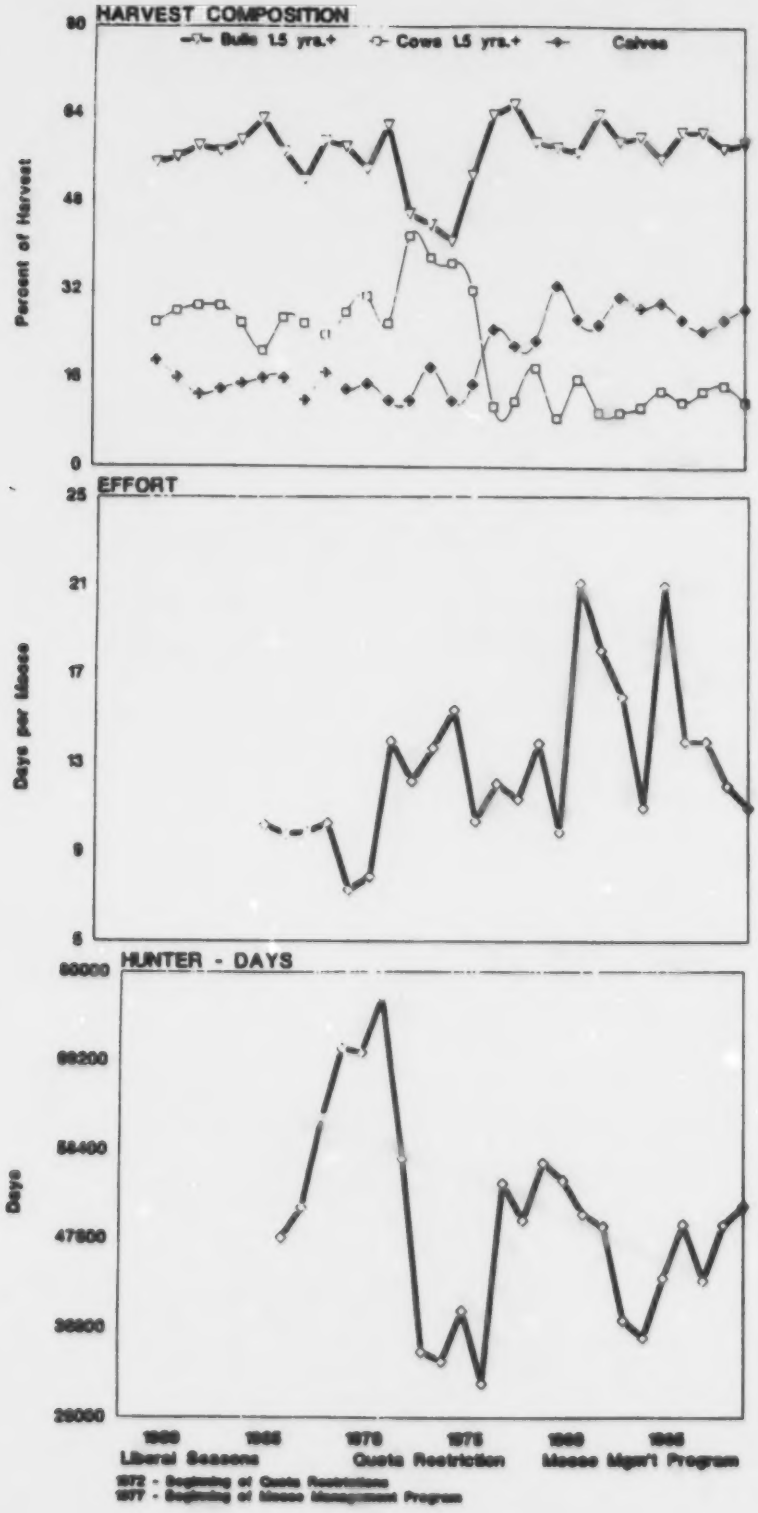


Figure 9. Estimated provincial hunter success and harvest pressure during the moose season, 1959-89.

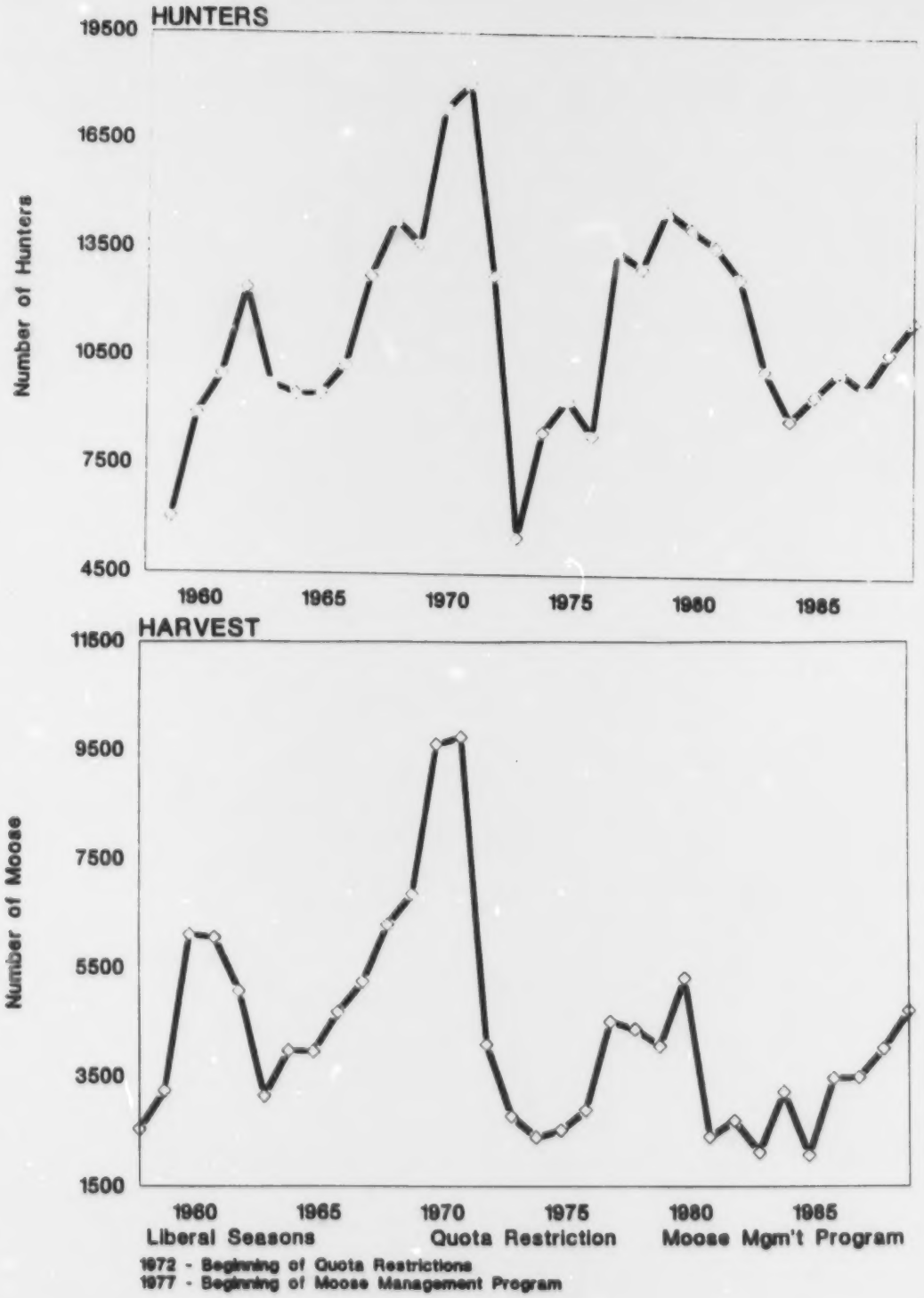


Figure 9 (Continued). Estimated provincial hunter success and harvest pressure during the moose season, 1959-89.

iv) Fort a la Corne Wildlife Management Unit (WMZ 50)

- Data collected during a 1987-88 survey may have over estimated the moose population because the survey was designed for elk. Field reports do not support the conclusion that the moose population has improved as much as the 1987-88 survey indicated. Taking this information into consideration the licence quota for 1989 was reduced by 100 licences. As a result 100 hunters harvested 61 moose in 1989 as compared to 208 hunters harvested 86 moose in 1988. The drop in licences resulted in a drop of hunter days from 925 days in 1988 to 415 in 1989.

v) Duck Mountain Park Provincial Park (WMZ 37)

- A telephone survey indicated that of the 95 hunters contacted (quota 100 licences) 38 were successful, spending 435.5 days hunting. The harvest was broken down into 10 bulls, 19 cows and nine calves (six males and three females). This data projects a harvest of 40 moose and 458 hunter days for 1989 as compared to a harvest of 35 moose and 436 hunter days in 1988.

vi) Greenwater Lake Provincial Park (WMZ 56)

- The hunter activity and harvest information for Greenwater Park is combined with WMZ 56 in the Big Game Hunter Questionnaire survey analysis and, therefore, could not be separated. DNR staff at Greenwater Park estimate a harvest of about 20 animals in 1989 which is higher than the 1988 season.

3. Harvest Structure

- The provincial harvest structure was estimated at 3.99 bulls:cow:2.06 calves, with bulls, cows and calves comprising 59 per cent, 14 per cent and 29 per cent of the harvest, respectively (Table 36). These percentages are similar to 1987 and the long-term trend since selective harvest strategies were introduced in 1977.

Table 36. Provincial moose harvest structure, 1986-89[a].

Ecozone	1986 Males:Females:Young	1987 Males:Females:Young	1988 Males:Females:Young	1989 Males:Females:Young
Grassland	0.50:1:1.25	1.14:1:0.00	3.40:1:0.40	4.25:1:0.00
Farmland	0.50:1:0.00	0.00:1:0.00	0.00:1:0.00	0.00:1:0.00
Parkland	1.96:1:1.46	1.30:1:0.70	1.61:1:1.00	10.00:0:0.00
Fringe	2.00:1:1.47	1.52:1:0.92	1.44:1:1.20	1.56:1:1.31
Forest	5.85:1:2.41	6.11:1:2.45	5.22:1:2.29	4.71:1:2.31
Shield	14.21:1:0.00	22.00:1:0.00	10.00:0:0.00	10.00:1:5.00
Total	4.97:1:2.19	4.36:1:1.83	3.94:1:1.89	3.99:1:2.06
Percent	61%:12%:27%	61%:14%:25%	58%:15%:27%	57%:14%:29%
Percent (Forest only)	63%:11%:26%	64%:10%:26%	61%:12%:27%	59%:12%:29%

[a]Includes both bull-calf and draw either sex seasons, but not guided moose licences nor free big game permits to trappers.

Biological Collection Data

- DNR no longer runs check stations but relies on privately operated check points for samples. With check stations spread throughout the northern Forest area of the province 1,172 samples were collected which is the highest number recorded since the establishment of the present moose management system. Most of the check points worked very well with some operators providing incentives for hunters to bring in samples. Samples were collected during the draw either sex and bull-calf seasons, and tabulated according to animal sex and age class (Table 37, Figure 10).

Table 37. Sex and age composition of the 1989 Saskatchewan moose harvest as calculated from tooth samples.

	Age Class																	
Female	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5[a]	unk[b]	Total
Frequency	144	49	39	20	17	8	8	6	9	6	6	6	2	2	1	1	17	341
Percent	12.3	4.2	3.3	1.7	1.5	0.7	0.7	0.5	0.8	0.5	0.5	0.5	0.2	0.2	0.1	0.1	1.5	29.2
Row Pct.	42.2	14.4	11.4	5.9	4.9	2.4	2.4	1.8	2.6	1.8	1.8	1.8	0.6	0.6	0.3	0.3	4.9	
Col. Pct.	52.8	18.4	17.9	14.8	22.9	20.5	27.6	66.7	56.3	50.0	60.0	60.0	40.0	100.0	100.0	100.0	25.8	
Male	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	unk	Total
Frequency	129	218	179	115	57	31	21	3	7	6	4	4	3	0	0	0	49	826
Percent	11.1	18.7	15.3	9.9	4.9	2.7	1.8	0.3	0.6	0.5	0.3	0.3	0.3	0.0	0.0	0.0	4.2	70.8
Row Pct.[c]	15.6	26.4	21.7	13.9	6.9	3.8	2.5	0.4	0.9	0.7	0.5	0.5	0.4	0.0	0.0	0.0	5.9	
Col. Pct.	47.3	81.7	82.1	85.2	77.0	79.5	72.4	33.3	43.8	50.0	40.0	40.0	60.0	0.0	0.0	0.0	74.2	
Total																		
Frequency[d]	273	267	218	135	74	39	29	9	16	12	10	10	5	2	1	1	66	1167
Percent	23.4	22.9	18.7	11.6	6.3	3.3	2.5	0.8	1.4	1.0	0.9	0.9	0.4	0.2	0.1	0.1	5.7	100.0

[a]Age class 15.5 contains animals 15.5 years and older.
[b]The unk age class represents animals of unknown age.
[c]Pct. - Percent
[d]Includes unknown sex.

- The overall harvest structure of 55 per cent bulls, 20 per cent cows and 25 per cent calves was roughly similar to the 59 per cent bulls, 12 per cent cows and 29 per cent calves reported in the Big Game Hunter Questionnaire survey data for 1989. Minor variation can probably be attributed to sample size and hunters failing to accurately estimate animal ages in the hunter questionnaire responses.
- Analysis by age class indicated that the 1989 harvest consisted of 24.8 per cent calves, 3.6 per cent yearling females, 17.9 per cent yearling males, 16.9 per cent adult cows and 36.7 per cent adult males (Table 37, Figure 10). Percentages of bulls and calves have remained similar for the last five years which indicate that age classes are stable in the provincial moose population. The 1989 checking station data indicates the highest percent of cows in the harvest since 1983. The high number of cows in the 1989 harvest may reflect an increase in the number of cows in the overall population.

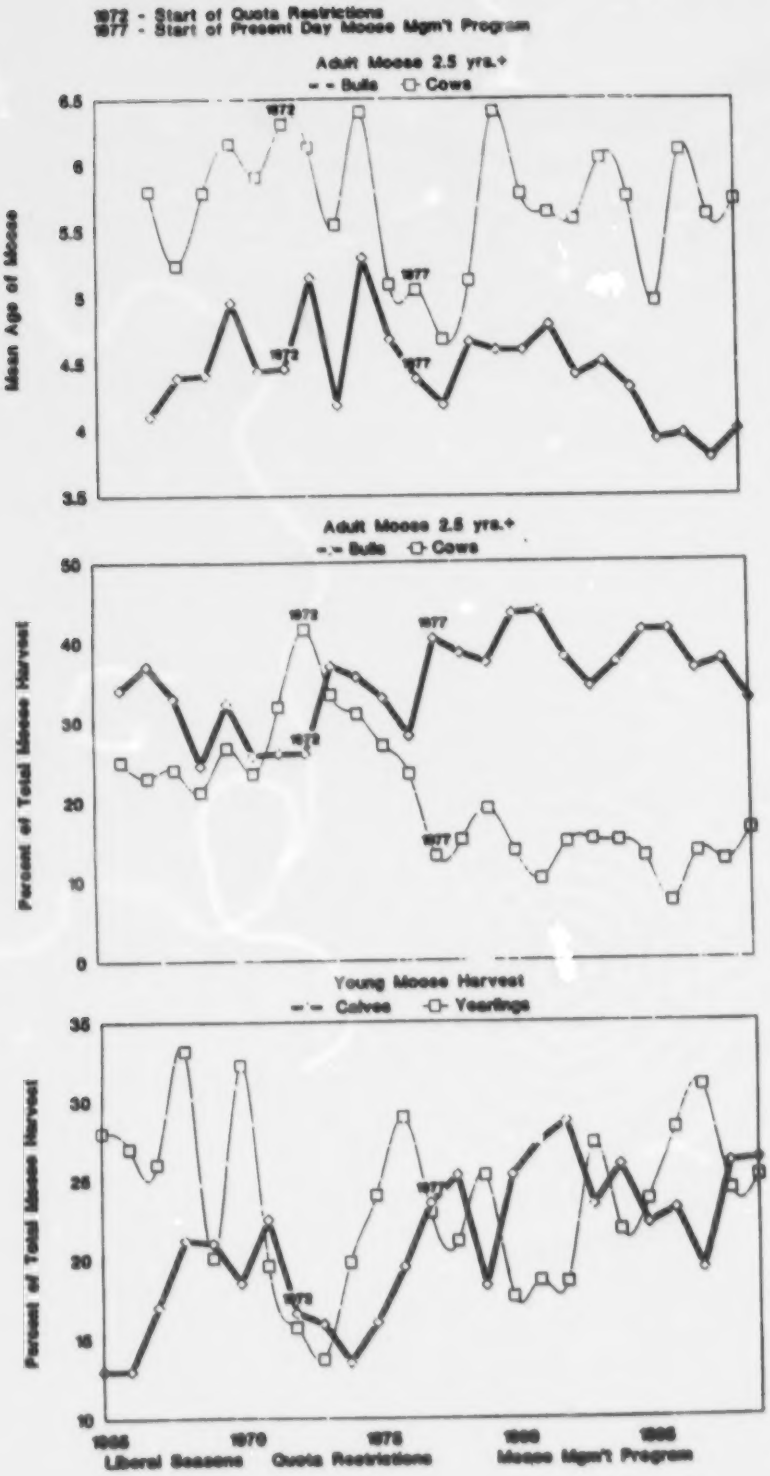


Figure 10. Sex and age composition of the provincial moose harvest based on check station samples, 1965-89.

4. Archery (WMZ 37 and WMZ 55 and 68, combined)

- Due to the lack of demand for 1987 draw moose licences in the combined WMZ 55 and 68 (quota 100 licences), the draw archery season in these WMZ was replaced in 1988 with an either-sex open season which coincided with the rut. In 1989, 46 hunters harvested 14 moose spending 198 days hunting.
- In 1989 the draw season in WMZ 37, including Duck Mountain Provincial Park, resulted in 46 hunters harvesting six moose and spending 247 days hunting. This was the third year for an archery hunt in Duck Mountain Provincial Park which has a quota of 50 licences. The 1988 season provided 161 days of recreation for 34 hunters who harvested five moose.

B. POPULATION STATUS

1. Density: Trend Line Surveys

- In 1989-90 only half the trend line blocks for moose were flown (a decision which was made in 1987-88 due to budget restraints).
- The Porcupine East (WMZ 57) survey indicated a very strong population, probably as a result of the Woody Lake burn (1980). The burn is providing ideal moose habitat with the survey indicating 46 per cent increase from the 1988 survey and a 56 per cent increase from the long-term average (Table 38). The 0.67 moose/km^2 is the highest recorded value for the Porcupine East Block in the past 14 years.
- The Porcupine West (WMZ 56) survey indicates a relatively stable population. The 1989-90 survey revealed 0.50 moose/km^2 which is 18 per cent lower than the 1988-89 survey and long-term average. The Porcupine West moose population is still believed to be very strong.
- The Cumberland South survey (WMZ 60) revealed a population of 0.32 moose/km^2 which is 36 per cent below the 1988 survey and 33 per cent below the long-term average. Calf survival may still be a problem in WMZ 60.
- The Pine Bluff survey (WMZ 61) indicated a 57 per cent increase from the 1988 survey and a 3 per cent increase from the long-term average. The 1990 density of 0.72 moose/km^2 is still below the late 1970's densities which were above one moose/km^2.
- The Candle Lake East survey (WMZ 63) indicated that this moose population may be recovering. The 1990 density of 0.14 moose/km^2 is 40 per cent higher than the long-term average. Of importance is that local residents are claiming that there are improved moose populations in the Candle Lake vicinity.
- The Cold Lake survey (WMZ 67) showed a 37 per cent drop from the 1986 survey and a 48 per cent drop from the long-term average. The Cold Lake area is capable of supporting more than 0.12 moose/km^2 (1990 survey). Survey conditions may be the main reason for a drop in the moose density for 1990.

Table 38. Moose population estimates based on trend line aerial surveys, 1978-89[a].

Area	Zone	Km²	Moose/Km² 1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1978-1989 Average	Change From Last Survey (%)	Change From Average (%)
Porcupine East	57	284.9	0.22	0.38	0.48	0.47	0.36	0.58	0.28	0.44	0.45	0.59	0.46	—	0.67	0.43	+46	+56
Porcupine West	56	201.0	0.42	0.94	0.59	0.47	0.54	0.68	0.39	0.42	0.67	0.94	0.61	—	0.50	0.61	-18	-18
Leaf Lake	58	323.7	0.53	0.44	0.29	0.29	0.50	0.36	0.40	0.36	0.41	—	0.61	—	—	0.42	+49	+45
Greenwater	56	42.7	0.14	0.28	0.28	0.21	0.19	0.89	0.37	0.52	1.26[a]	0.96	—	0.85	—	0.51	-12	+40
Cumberland South	60	375.5	0.50	0.59	0.52	0.49	—	0.49	0.43	0.35	0.46	—	0.50	—	0.48	0.32	-36	-33
Cumberland Central	60	106.2	0.47	0.50	0.39	0.73	0.41	0.37	0.32	0.44	0.56	0.47	0.48	—	—	0.47	+0	+0
Pine Bluff	61	119.1	1.21	1.17	0.77	0.91	0.94	0.81	0.83	0.64	0.39	0.74	0.46	—	0.72	0.70	+57	+3
Connell Creek[b]	59	116.5	—	—	1.20	1.18	0.71	0.68	0.65	0.82	0.74	1.12	—	0.76	—	0.89	-32	-14
Candle Lake East	63	251.2	0.15	0.17	0.08	0.15	—	0.12	0.04	0.11	0.10	—	0.004	—	0.14	0.10	+1300	+40
Torch River	62	196.8	0.34	0.26	0.21	0.21	0.18	0.25	0.10	0.17	0.12	0.22	—	—	—	0.21	—	—
Dore South	66	626.8	0.13	0.32	0.27	0.19	0.17	0.13	0.07	—	0.09	—	0.11	—	—	0.16	+22	-31
Waterhen Keeley[c]	69	353.5	0.24	0.28	0.33	0.21	—	—	0.27	0.18	0.11	0.27	—	—	—	0.24	—	—
Cold Lake	69	248.6	0.26	0.34	0.30	0.29	—	0.20	0.13	0.15	0.19	—	—	—	0.12	0.23	-37	-48
Divide	67	422.2	0.28	0.53	0.46	0.39	0.27	0.19	0.30	0.44	0.26	0.33	0.41	—	0.18	0.35	-56	-49
Bronson	68	392.1	0.62	0.51	0.56	0.42	—	0.24	0.49	0.31	0.34	—	0.32	—	—	0.42	-6	-24

[a]Based on comparable survey blocks.
[b]Revised survey in 1981.
[c]Revised survey in 1980.

- Divide Forest (WMZ 67) 1990 survey indicated a population of 0.18 moose/km² which is the lowest density recorded for the Divide Forest. The 1990 density is 56 per cent below the 1988 survey and 49 per cent below the long-term average. Survey conditions may have been the main reason for the low density value. A follow up quadrat survey estimated a moose population well above that indicated by the trend line survey.

2. Population Estimate: Stratified Random Quadrat Survey

- The quadrat survey flown in the Bronson forest (WMZ 68) in 1990 indicated a growing or stable population (Table 39). Survey results have shown an increase in recent years from 1376 ±22% in 1982-83, 1457 ±20% in 1986-87 and 1491 ±21% in 1989-90. Although confident intervals overlap between all three surveys, the trend shows positive growth.
- The quadrat survey flown in the Divide Forest (WMZ 67) indicated a 75 per cent increase from the previous survey flown in 1983. The population in the Divide Forest increased from 1343 ±19% in 1983 to 2349 ±22% in 1990. This large increase sharply contradicts the trend survey which indicated a sharp decrease.
- The quadrat survey flown in Moose Mountain Provincial Park since 1982-83 indicated a declining population (Table 39). The 1989-90 survey was 47 per cent below the initial 1982-83 survey.

3. Population Structure

- No sex-age surveys were flown for moose in 1989-90. The Co-operative Wildlife Management Study, with a sample size of 395 animals, indicated 81 males and 61 calves per 100 cows in the Commercial Forest. Ratios in the draw seasons (harvest data) appear to be extremely variable from WMZ to WMZ. The reason for the variability may be that some sample sizes were not large enough to provide comparable data.

4. Moose Tick Index

- Field reports throughout the moose range in Saskatchewan indicates that the ticks do not appear to be a problem during the spring of 1990.
- Calf hides taken during the 1989 late seasons and analyzed for ticks by SIAST students at Prince Albert indicated that the number of ticks in the Hudson Bay area is 36 per cent lower than that encountered in the 1988 sample although the results are not statistically different between the two years.

5. Mean Age of Adults

- Table 41 indicates that the mean age of the adult moose has changed very little in the past eleven years. Hunting during the rut has not resulted in an increase in the mean age of bulls being harvested. This statement is also supported by the comparison of grouped ages 1½

Table 39. Moose population estimates based on stratified random quadrat aerial survey sampling, 1982-89[a]

Survey Block	WMZ	Survey Area Km²	1983-84 Estimate (Moose/km²)	1984-85 Estimate (Moose/km²)	1985-86 Estimate (Moose/km²)	1986-87 Estimate (Moose/km²)	1987-88 Estimate (Moose/km²)	1988-89 Estimate (Moose/km²)	1989-90 Estimate (Moose/km²)
Bronson	68	3418	—	—	—	1457 ± 20% (0.43/km²)	—	—	1491 ± 21% (0.44/km²)
Cub Hills[b]	63	822	194 ± 29% (0.35/km²)	282 ± 24% (0.35/km²)	—	276 ± 20% (0.34/km²)	—	309[c] (0.38/km²)	—
Cumberland South	60	2279	1667 ± 20% (0.73/km²)	—	—	1724 ± 20% (0.76/km²)	—	—	—
Duck Mtn. Park	37	469	—	—	—	372 ± 22%	—	—	(0.79/km²)
Fort a la Corne	50	1401	—	—	—	—	427 ± 20% (0.30/km²)	—	—
Moose Mtn. Park	33	684	370 ± 19% (0.54/km²)	356 ± 23% (0.52/km²)	302 ± 20% (0.44/km²)	418 ± 18% (0.61/km²)	—	277 ± 21% (0.40/km²)	227 ± 22% (0.33/km²)
Porcupine	56 & 57	3553	3092 ± 15% (0.87/km²)	—	—	3346 ± 17% (0.94/km²)	—	3561 ± 19% (1.00/km²)	—
Thunder Hills[b]	66	340	106 ± 26% (0.31/km²)	158 ± 17% (0.46/km²)	—	120 ± 33% (0.35/km²)	—	—	—
Candle Lake[b]	64	1599	—	—	236 ± 23% (0.15/km²)	—	—	—	—
Woody Burn	57	1134	686 ± 20% (0.60/km²)	765 ± 18% (0.67/km²)	—	—	—	—	—
Divide	67	3385 (0.40/km²)	1343 ± 19%	—	—	—	—	— (0.69/km²)	2349 ± 22%

[a]Moose population estimates calculated at $P \leq 0.05$.

[b]Represent moose restoration project areas; survey design differs slightly from other survey blocks.

[c]Bounds about mean population estimate not calculated.

Table 40. Mean age of adult animals in the harvest and comparison of 1½ - 3½ year old males to prime age males.

Year	Mean Age		Bull Comparison	
	Cows	Bulls	1½ - 3½ Years	Prime
1989	5.4	4.1	74%	26%
1988	5.4	3.9	79%	21%
1987	6.1	4.2	79%	26%
1986	5.7	4.1	77%	23%
1985	5.8	4.2	74%	26%
1984	6.2	4.5	69%	31%
1983	5.5	4.6	74%	26%
1982	5.6	4.8	63%	37%
1981	5.6	4.5	64%	36%
1980	6.2	4.6	61%	39%
1979	5.1	4.3	73%	27%
1978			72%	28%

to 3½ year old males to the remaining prime age male classes. This data indicates no increase in the percentage of prime age males being killed when hunting during the rut.

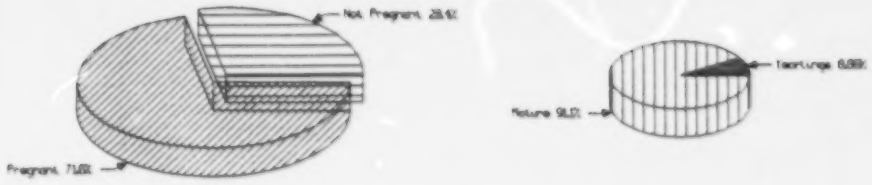
6. Conception Dates from Biological Collection Program

- Moose hunters were asked to collect and turn in the reproductive tract from adult cow moose harvested in the late portion of the special season.
- Eighty-eight (88) uteri were analyzed to ascertain pregnancy. Embryos were measured and back dated to the day of conception. Unfortunately, only 54 of the 88 samples could be used in conception date analysis.
- The per cent of cows pregnant was 72 per cent and of these gravid females, 91 per cent were 2.5 years or older (Figure 11).
- When mature and yearling cows were treated separately 80 per cent of the mature cows were pregnant while only 22 per cent of the yearlings were in the same state (Figure 12).
- Twenty-four (24) per cent of the uteri analyzed contained twins (Figure 13).
- The earliest date of recorded conception was September 23 while the latest was November 6. The peak of conception was September 27 while the mean was October 3 (Figure 14). Twenty-five (25) per cent of the cows were bred by September 27, fifty (50) per cent (median) by September 30 and seventy five (75) per cent had completed breeding by October 4.
- Historic conception dates from other years were pooled with the 1989 results. In Figure 15 it was evident that October 2 was the peak of conception in the combined years. Twenty-five (25) per cent of the cows were gravid by September 28, fifty (50) per cent by October 5 (median) and seventy five (75) per cent by October 7.

7. Population Status

Cypress Hills Provincial Park (WMZ 6 and 7)

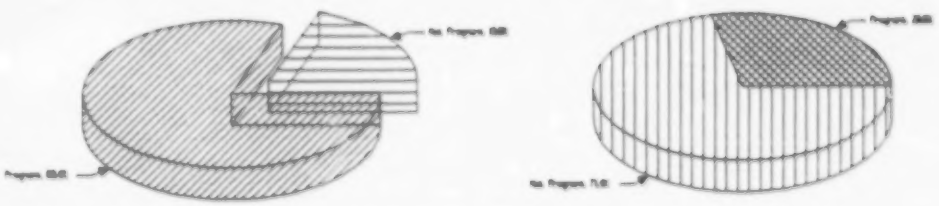
- The population in WMZ 7 remains relatively low owing to poor browse conditions and unregulated harvest in the West Block. The WMZ 6 population continues to demonstrate stability under limited harvest quotas.



Moose Cows 2.5 Years and Older were considered Sexually Mature
Sample Sizes: Pregnant = 63, Not Pregnant = 25
Of Known Age Pregnant Cows: Mature = 41, Yearling = 4

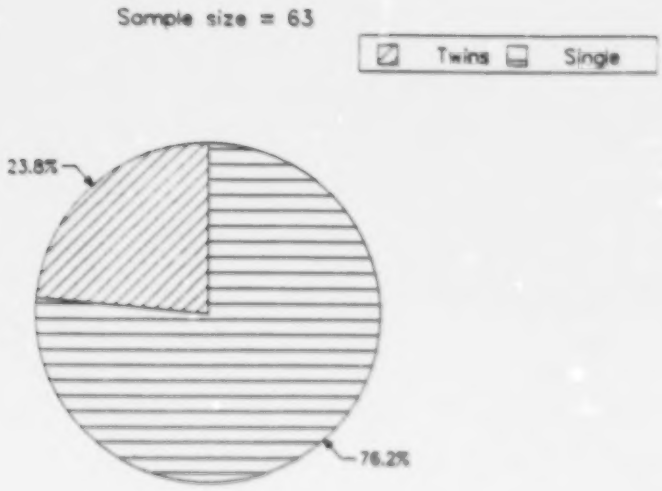
Figure 11. Percent of moose cows pregnant and maturity of cows pregnant.

Left Pie - Mature; Right Pie - Yearlings
n = 51 n = 14



No Significant Difference Between Ages of Pregnant and
Non-Pregnant Cows 2.5 Years and Older

Figure 12. Percent of mature and yearling moose cows which were pregnant.



No significant difference (P= 0.05) in age between pregnant cows with twins and cows without twins (i.e. single embryos).

Figure 13. Twinning rates for pregnant cow moose, includes yearling cows.

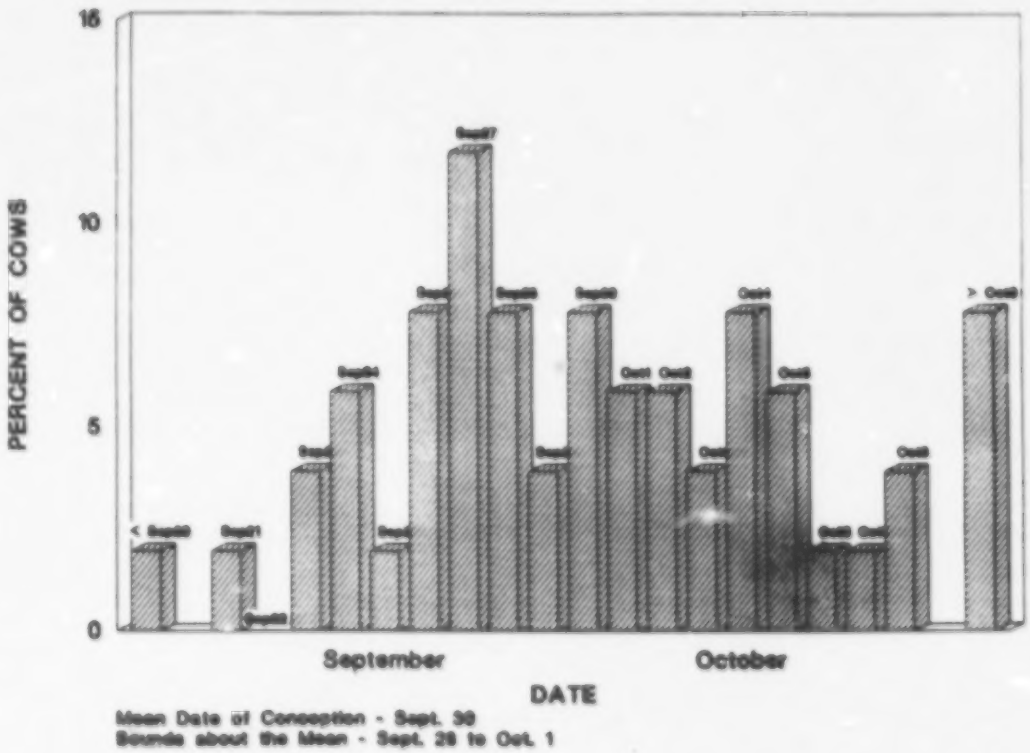


Figure 14. Moose conception dates, 1989.

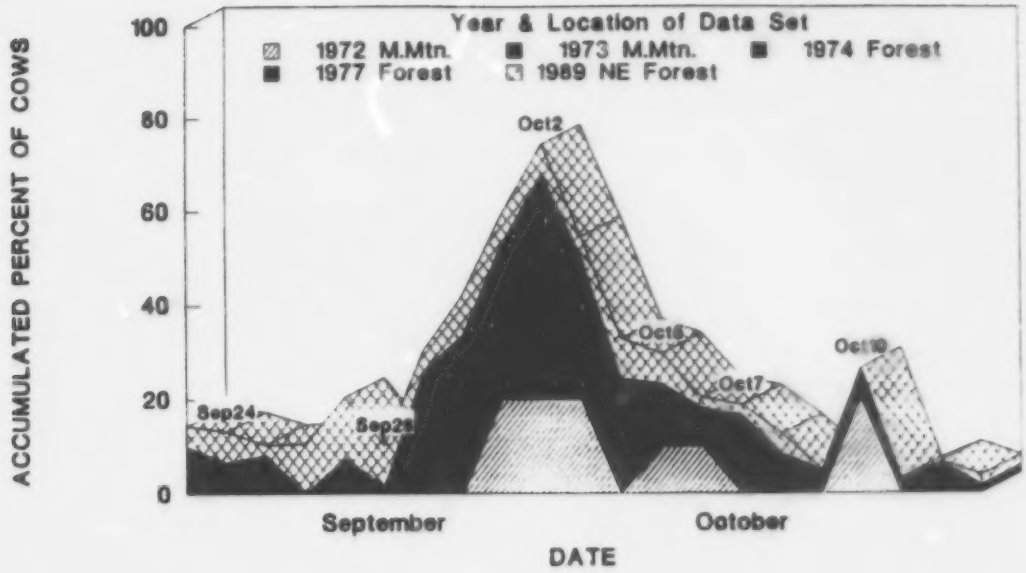


Figure 15. Moose conception dates from different years and locations in Saskatchewan.

Fort a la Corne Wildlife Management Unit (WMU 50)

- The 1987-88 survey indicated a population of some 427 ±20% moose which represented a considerable improvement from the 1982-83 survey population of 234 ±24%. Data collected during the 1987-88 survey may have overestimated the moose population because the survey was designed for elk. Although no aerial moose surveys were carried out over Fort a la Corne in 1989-90, field reports do not support a conclusion that the moose population has improved as much as the 1987-88 survey indicated. There is no doubt that the current road closure program will provide necessary long term protection for the moose populations from excessive unregulated hunting.

Duck Mountain Provincial Park (WMU 37)

- A quadrat survey in January 1987 indicated a population of 372 ±15% compared to 228 ±18% in 1983 (Table 39). The status of the moose population in Duck Mountain Park is believed to be favourable and stable.

Greenwater Lake Provincial Park (WMU 56)

- Greenwater Park was not flown in 1989-90. There is no reason to believe that the moose population in Greenwater Park is not stable being very similar to the west part of the Porcupine Forest.

Moose Mountain Provincial Park (WMU 33)

- The population continues to drop as indicated in Table 37. Unregulated harvest remains high and is a major factor limiting population growth.

Thickwood Hills (WMZ 54)

- The status of the moose population in the Thickwood Hills has probably not changed since the survey in 1989 which indicated a smaller population than that of a survey carried out in 1987. Unregulated harvest is believed to be a major factor which is stopping population growth.

WMZ 70 to 73

- The long hunting season in WMZ 70-73 has resulted in officer concerns about the moose harvest in the Creighton area. A telephone survey revealed that of the 98 hunters contacted 24 were successful (36 per cent hunter success). The concern is related to good access, a long season and a low moose population. There is no data available to indicate that the Creighton population cannot handle this harvest, considering that only bulls and calves are being killed and the success is not higher than other areas of the province.

C. 1990 MANAGEMENT OBJECTIVES

- On the east side of the province moose populations are generally in good or improved status. The Porcupine Forest continues to be the most important area for moose in Saskatchewan. The moose population in the Pasquia Hills and the northern part of the Cumberland Delta are stable. In WMZ 60, the southern part of the Cumberland Delta, the moose population is showing no sign of recovering.
- With the extensive road closure program in the central part of the province moose populations are stable with areas showing signs of growth.
- On the west side populations have recovered from past tick outbreaks and perhaps are responding to the road closure programs.

- **The 1990 moose management strategy involves the following objectives:**

1) For 1989, draw season quotas will remain static with the exception of WMZ 47, 55 and 68, combined and WMZ 67. Aerial surveys indicated improved moose populations in both areas. Proposed quotas are 150 licences in WMZ 47, 55 and 68, combined (closed season in 1989). That portion of WMZ 54 north of Highway No. 3 will be combined with WMZ 67. The licence quota will be increased from 150 in 1989 to 200 in 1990. This combining of WMZ 54 and 67 will also take place in the bull-calf season.

2) The early and late bull-calf season structure for Saskatchewan residents will be maintained. Because of the concern of hunting during the rut, the early bull-calf season will start October 8 and not the first Monday of October. This decision was based upon the results of the reproductive tract analysis. An October 1 starting date would result in only 47 per cent of the cows being successfully bred prior to the season, but the proposed October 8 date would mean approximately 86 per cent would be already pregnant (Figure 16).

3) A bull-calf season of similar length and time as in 1989 will occur in 1990 in WMZ 70 to 73. This season format appeared popular to residents and data indicated no problems with the moose population.

4) Road corridor game preserves and road closure initiatives will be used in areas where moose populations are depressed and where there is concern because of improved access.

5) Guided moose season will change little in 1990 except for calendar adjustment. The guided moose season will start October 1 - one week before the regular season to provide the clients a good opportunity to harvest a moose and a season of sufficient length to accommodate all the clients (Table 41).

6) The Cub Hills Restoration Area will be open for bull-calf moose hunting in 1990. Road corridor game preserves will be established and selective road closures will continue to provide protection to moose along major access corridors.

7) Archery draw moose season dates (Sept. 17 - 29) in WMZ 37 will remain similar to 1989 and extend through the peak period of the rut. In WMZ 55 and 68 the season will start one week later and extend into October (Sept. 24 - Oct. 6). Low archery hunter participation and harvest does not interfere with the rut, while this timing gives the archers a better chance of success due to competition with rifle elk hunters. A quota of 50 special licences will be maintained for WMZ 37 (Duck Mountain Provincial Park) while WMZ 55 and 68 combined, will be open to all Saskatchewan residents for an either-sex moose hunt.

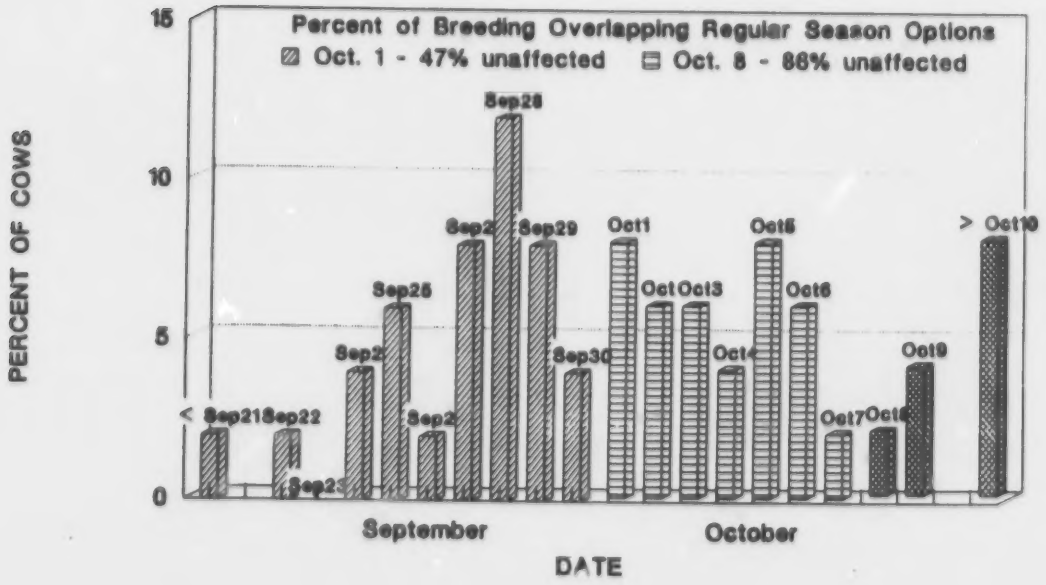


Figure 16. Theoretical 1990 moose breeding period (based on 1989 conception dates).

Table 41. Comparison of season dates for regular and guided moose licences.

Year	Bull-calf	Guided
1989	October 2 - October 7 November 20 - December 2	October 2 - October 21 November 6 - November 25
1988	October 3 - October 8 November 21 - December 3	October 3 - October 22 November 7 - November 26
1987	October 5 - October 10 November 16 - November 28	October 5 - October 24 November 2 - November 21
1986	October 6 - October 11 November 17 - November 29	October 6 - October 25 November 3 - November 22
1985	October 7 - October 12 November 18 - November 30	September 30 - October 19 November 4 - November 23
1984	October 8 - October 13 November 19 - December 1	October 1 - October 20 November 5 - November 24
1983	October 10 - October 15 November 21 - December 3	October 3 - October 22 November 7 - November 26
1982	October 4 - October 9 November 15 - November 27	October 4 - October 23 November 1 - November 20
1981	October 5 - October 10 November 16 - November 28	October 5 - October 24 November 2 - November 21

8) Southern Areas

Moose Mountain Provincial Park (WMZ 33)

- The season will remain closed to sport hunters in 1990 due to the low population as indicated by recent surveys. Seasons will remain closed until this population has recovered and can handle a limited quota.

Cypress Hills Provincial Park (WMZ 6 and 7)

- On the basis of apparent stability in the moose population of WMZ 6, a small licence quota (25) will be maintained in 1990. WMZ 7 will remain closed due to a low population and existing unregulated harvest.

Thickwood Hills (WMZ 54)

- The special season in WMZ 54 will remain closed for 1990.

Fort a la Corne Wildlife Management Unit (WMZ 50)

- The 1990 licence quota will remain at 100 licences.

Duck Mountain Provincial Park (WMZ 37)

- The present 100 licence quota will be retained along with a quota of 50 licences for archery.

Greenwater Lake Provincial Park

- In Greenwater Park a quota of 50 licences will be maintained in 1989.

D. 1990 MOOSE SEASONS

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Either sex Moose	Zone 6	Oct. 22 - Oct. 27	one moose, either sex	• Licence quotas (in brackets) for each zone: 6(25), 37(100), 47, 55 and 68 combined (150),50(100), 48, 49 and 56 combined (300),54 and 67 combined (200), 57(200), 58(200), 59(400), 60(200), 61(100), 62(50), Greenwater Lake Provincial Park (50).
	Zones 48, 49 and 56 combined; and Zones 54 (north of Highway No. 3) and 67 combined, and Zones 57 to 62 including Leaf Lake Wildlife Management Unit	Sept. 10 - Sept. 15 and Nov. 5 - Nov. 17	one moose, either sex	
	Zone 37, including Duck Mountain Provincial Park; and that portion of Zone 47 north of Highway No. 3 and west of Highway No. 26. Zones 55 and 68 combined including Bronson Forest Recreation Site	Nov. 5 - Nov. 17	one moose, either sex	
	Greenwater Lake Provincial Park	Nov. 5 - Nov. 17	one moose, either sex	
	Zone 50, including Fort a la Corne Wildlife Management Unit	Sept. 10 - Sept. 22 and Nov. 5 - Nov. 17	one moose, either sex	
Either sex Moose (Archery)	Zone 37, including Duck Mountain Provincial Park	Sept. 17 - Sept. 29	one moose, either sex	• The archery moose licence in Zone 37 is valid only during the archery season; licence quota (50).
Archery Moose (Sask. Residents Only)	Zones 55 and 68 combined, including Bronson Forest Recreation Site	Sept. 24 - Oct. 6	one moose, either sex	• A regular bull-calf moose licence can beused to harvest any moose by means of abow during the archery season dates. Unfilled licences can also be used during the regular moose season but only to harvest a bull or 1990 calf moose.

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Bull-calf Moose (Sask. Residents Only)	Zones 43, 48, 49, 53, 56 to 67 and 69, including Cookson and Leaf Lake Wildlife Management Units; and Nipawin Provincial Park	Oct. 8 - Oct. 13	one bull or one 1990 calf moose	• "Bull Moose" means a male moose one or more years old. "Calf Moose" means any moose born in 1990. "Cow Moose" means a female moose one or more years old.
Early Season	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Sept. 10 - Sept. 22	one bull or one 1989 calf moose	• Successful applicants for a special moose licence are not eligible to purchase a regular moose licence.
	Zones 74, 75 and 76	Aug. 27 - Oct. 6	one bull or one 1989 calf moose	• The antlers of bull moose and the lower jaw of calf moose must accompany the carcass.
Late Season	Zones 43, 48, 49 and 56 to 59, including Leaf Lake Wildlife Management Unit	Nov. 19 - Dec. 1	one bull or one 1989 calf moose	
	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26, and Zones 53, 55 and 60 to 69, including Cookson Wildlife Management Unit; Nipawin Provincial Park; and Bronson Forest Recreation Site	Nov. 19 - Nov. 24	one bull or one 1989 calf moose	
	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Oct. 1 - Dec. 1	one bull or one 1989 calf moose	
Guided Moose (Canadian Residents and Non Residents	Zones 60, 61, 62 and 69	Oct. 1 - Oct. 20 and Nov. 5 - Nov. 24	one bull or one 1989 calf moose	• Persons possessing a guided moose licence may also purchase a white-tailed deer licence and hunt during the moose season dates.
	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Park	Sept. 10 - Sept. 22 and Oct. 1 - Dec. 1	one bull or one 1989 calf moose	• The antlers of bull moose and the lower jaw of calf moose must accompany the carcass.
	Zones 74 to 76	Aug. 27 - Oct. 6	one bull or one 1989 calf moose	• 400 Guided Moose Licences are available directly from outfitters. Quotas (in brackets) for each zone: 60(60), 61(110), 62(15), 69(15), 70(15), 71(45), 72(45), 73(10), 74(45), 75(10), 76(30).

MULE DEER

A. REVIEW OF 1989 HUNTING SEASON

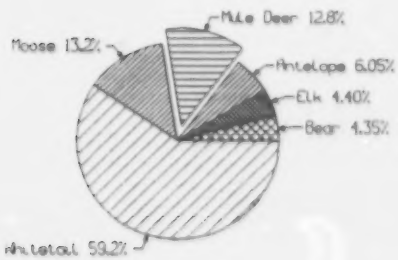
1. Licence Sales

- Either-sex licence sales for all weapon types combined increased by 7 per cent owing to quota increases (Tables 1 and 42). Antlerless licence sales increased by 57%, while quotas increased by 113%. Hunter demand for antlerless mule deer was approximately 4,700 hunters in 1989 (Table 3), compared to 2,900 in 1988. About 33% of all antlerless licences available in 1989 were not allocated (Table 3).

Table 42. Provincial mule deer draw licence sales, 1985-89[a].

	1985	1986	1987	1988	1989	% Change
Rifle						
Either-sex	6,453	6,836	6,857	6,171	6,446	+ 4.5%
Antlerless	9,196[b]	4,042	2,029	2,101	3,416	+62.6%
Archery						
Either-sex	804	946	841	902	1,009	+11.9%
Antlerless	172	72	52	43	56	+30.2%
Muzzleloader						
Either-sex	—	152	146	253	379	+49.8%
Antlerless	—	123	135	153	143	-6.5%
Total Sales	16,625	12,171	10,060	9,623	11,449	+19.0%

1989 Big Game Licence Sales



[a] All licence sales represent final sale figures as of June 26, 1990; however, the data analysis was based on projected figures available in mid-February, 1990.

[b] 9,196 - 2 deer bag for each antlerless licence.

2. Hunting Activity and Harvest

- The overall mule deer harvest increased by 25% from 7,668 in 1988 to 9,547 in 1989 (Table 43) as a result of a significant reduction of 1,100 licences.
- Either-sex rifle hunter success was 90% for all WMZ combined, a small increase of 4 per cent from 1988 (Table 44).
- Antlerless hunter success was 95%, up 6 per cent from 1988 (Table 45).
- Recreation days totalled 25,629 a 22% increase from 20,932 days in 1988 (Table 46).
- Hunter-days per animal declined 15% from 1.8 in 1988 to 1.5 in 1989 for the antlerless rifle seasons but remained relatively constant (-4%) at 2.3 days for 1988 either-sex rifle seasons and 2.2 days for 1989 (Table 46).

Table 43. Provincial mule deer harvest, 1989.

Ecozone	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young (Actual Harvest)	Hunter Days	Hunter Days/ Animal
Grassland[a]	9,036	9,064	7,789	86.2	7,789	1.21:1:0.37 (3,650:3,027:1,112)	20,478	2.6
Farmland	1,599	1,604	1,385	86.6	1,385	2.81:1:0.44 (916:326:143)	3,677	2.7
Parkland	525	928	373	71.0	373	2.28:1:0.31 (237:104:32)	1,482	4.0
Total	11,160	11,196	9,547	85.5	9,547	1.39:1:0.37 (4,803:3,457:1,287)	25,637	2.7

[a]Archery and muzzleloading harvest statistics cannot be separated by ecozone and thus, were included in Grassland totals as the majority of primitive weapon hunting is done within this ecozone.

Table 44. Estimated hunter success and harvest pressure during the either-sex mule deer rifle season, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
1	395	396	342	86.7	342	2.68:1:0.32	829	2.4	0.0996
2	729	731	685	94.0	685	7.76:1:0.48	1,430	2.1	0.1344
3	49	49	49	100.0	49	7.00:1:0.00	74	1.5	0.0171
4	147	147	144	8709	144	6.80:1:0.40	211	1.5	0.0259
5	203	204	197	97.1	197	4.80:1:0.30	343	1.7	0.0574
6	249	250	234	94.1	234	6.50:1:0.20	487	2.1	0.1161
7	198	199	183	92.5	183	5.29:1:0.29	534	2.9	0.2818
8	52	52	49	93.8	49	4.00:1:0.00	62	1.3	0.0182
9	488	489	445	91.2	445	5.59:1:0.18	845	1.9	0.2461
10	678	680	654	96.5	654	5.62:1:0.48	1,080	1.7	0.3046
11	48	48	45	93.5	45	5.22:1:0.33	88	2.0	0.1239
12	149	149	149	100.0	149	10.67:1:0.67	238	1.6	0.6926
13	401	402	370	92.2	370	5.94:1:0.35	642	1.7	0.1571
14	588	590	544	92.5	544	3.53:1:0.25	1,130	2.1	0.2025
Total	4,374	4,387	4,091	93.5	4,091	5.22:1:0.33	7,992	2.0	0.1239
Farmland									
18	51	51	36	71.4	36	3.00:1:1.00	102	2.8	0.0137
19	292	293	273	93.4	273	2.75:1:0.44	660	2.4	0.0715
23	227	228	205	90.4	205	3.22:1:0.78	661	3.2	0.1151
24	151	152	131	87.0	131	11.50:1:0.50	278	2.1	0.0575
25	196	197	188	96.0	188	3.56:1:0.22	328	1.7	0.0564
26	151	151	143	95.0	143	6.20:1:0.00	283	2.0	0.0627
27	101	101	101	100.0	101	9.50:1:0.50	198	2.0	0.0404
29	152	152	103	67.8	103	1.88:1:0.25	498	4.8	0.0935
30	148	149	94	63.2	94	1.73:1:0.27	396	4.2	0.0546
Total	1,469	1,474	1,275	86.8	1,275	3.57:1:0.40	3,404	2.7	0.0618
Parkland									
44	52	52	35	66.7	35	34.67:1:0.00	121	3.5	0.0265
45	100	101	57	56.6	57	6.00:1:2.00	340	6.0	0.0443
46	247	249	180	72.7	180	3.20:1:0.20	686	3.8	0.1151
47	50	50	45	89.4	45	4.00:1:0.33	168	3.7	0.0293
Total	449	452	316	70.3	316	4.26:1:0.42	1,314	4.2	0.0550

Table 45. Estimated hunter success and harvest pressure during the antlerless mule deer rifle season, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland									
1	221	222	201	91.0	201	0.00:1:0.28	356	1.8	0.0428
2	292	293	262	89.9	262	0.00:1:0.29	471	1.8	0.0443
4	58	58	56	96.2	56	0.00:1:0.21	78	1.4	0.0096
5	113	113	107	94.5	107	0.00:1:0.34	140	1.3	0.0235
6	198	199	185	93.2	185	0.00:1:0.26	310	1.7	0.0739
8	38	38	36	93.5	36	0.00:1:0.00	60	1.7	0.0177
9	258	259	252	97.6	252	0.00:1:0.38	364	1.4	0.1059
10	1,475	1,481	1,426	96.7	1,426	0.00:1:0.42	1,981	1.4	0.5586
11	97	97	97	100.0	97	0.00:1:0.35	142	1.5	0.1441
12	97	38	89	91.9	89	0.00:1:0.41	143	1.6	0.4157
13	291	97	284	97.7	284	0.00:1:0.41	371	1.3	0.0909
Total	3,138	3,150	2,995	95.5	2,995	0.00:1:0.37	4,416	1.5	0.0833
Farmland									
19	130	130	110	84.3	110	0.00:1:0.59	273	2.5	0.0296
Total	130	130	110	84.3	110	0.00:1:0.59	273	2.5	0.0296

Table 46. Provincial mule deer harvest structure and recreation days, 1988 and 1989.

	1988				1989			
Season	Harvest	Harvest Structure M:F:Y	Hunter Days	Hunter Days/ Animal	Harvest	Harvest Structure M:F:Y	Hunter Days	Hunter Days/ Animal
Either-sex								
Rifle	5,329	4.32:1:0.37	12,442	2.3	5,682	4.70:1:0.35	12,710	2.2
Archery	261	2.26:1:0.45	3,953	15.2	350	2.91:1:0.55	5,858	16.7
Muzzleloader	177	2.29:1:0.25	746	4.2	246	3.29:1:0.71	1,527	6.2
Total	5,767	4.09:1:0.37	17,141	3.0	6,278	4.51:1:0.38	20,095	3.2
Antlerless								
Rifle	1,773	0.00:1:0.39	3,217	1.8	3,162	0.00:1:0.34	4,857	1.5
Archery	7	0.00:1:0.00	158	22.6	19	0.00:1:0.12	290	15.3
Muzzleloader	122	0.00:1:0.21	416	3.4	88	0.00:1:0.22	387	4.4
Total	1,902	0.00:1:0.38	3,791	2.0	3,269	0.00:1:0.37	5,534	1.7
All Seasons Combined	7,669	1.79:1:0.34	20,932	2.7	9,547	1.39:1:0.37	25,629	2.7

- The number of days required to harvest an antlerless deer in 1987, as measured by hunter-days per animal, increased from the 1983-85 levels, so that only 0.4 hunter-days/animal separated either-sex from antlerless rifle season hunters. However, in 1988 and 1989 this trend has been reversed with antlerless hunters spending less time in the field; probably an indication of improving mule deer populations.

3. Harvest Structure

Hunter Questionnaire Survey

- The either-sex rifle season buck:doe ratio in the prime mule deer Grassland WMZ was 5.22 males per female, compared to 3.57 and 4.26 males per female in the Farmland and Parkland harvests, respectively (Table 44). Compared to 1988 the buck to doe ratio changed very little in the Grassland WMZ (5.19 males:female in 1988) but increased considerably in the Farmland and Parkland WMZ (2.96 and 2.74 males:female, respectively). In WMZ with relatively high mule deer densities, hunters tend to select for bucks provided they observe large numbers of deer during their hunt (Figure 17). For all seasons and ecozones combined the ratio of 1.39 bucks:doe was considerably lower than 1.79 bucks per doe in the 1988 harvest (Table 46); the result of increased antlerless quotas in 1989.

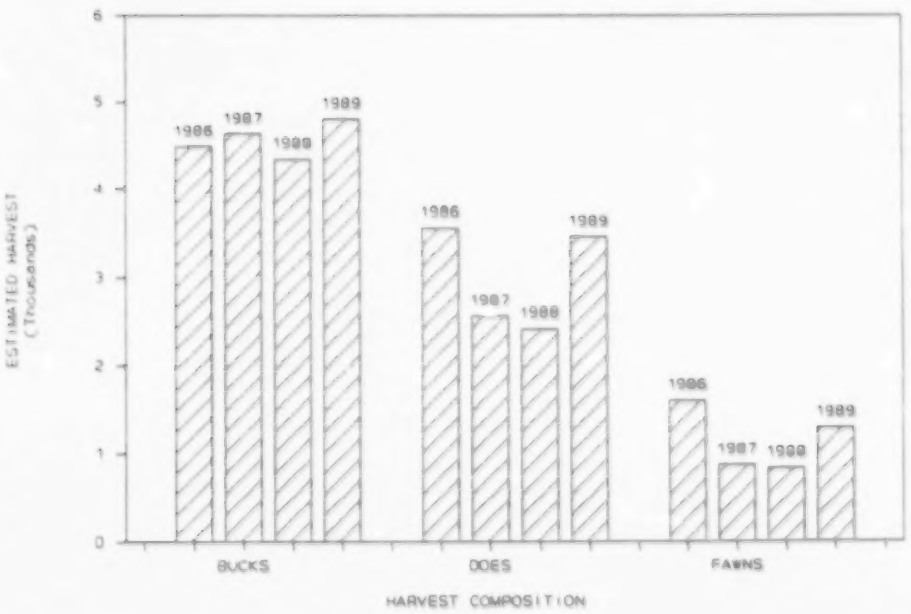


Figure 17. Composition of provincial mule deer harvest from all ecozones and all season types 1986 to 1989, inclusive. (Actual hunters and licence quotas: 1986 - 11,702 hunters; 8,100 either-sex and 6,300 antlerless, 1987 - 9,587 hunters; 8,000 either-sex and 2,900 antlerless, 1988 - 9,374 hunters; 7,250 either-sex and 2,550 antlerless, 1989 - 11,160 hunters; 7,850 either-sex and 5,425 antlerless).

- The total number of antlerless deer harvested in all seasons increased by 44.5%, from 3,283 harvested in 1988 to 4,744 in 1989 (Figure 17).
- The proportion of fawns per doe harvested was about the same as in 1988 (Table 46).

Check Stations - WMZ 10

- Two check stations were operated during the antlerless rifle mule deer seasons in 1989; one at the Elkink ranch and one at the Yeast ranch. All deer checked in were sampled for sex and age and fawns were weighed.
- A total of 587 deer were sampled during the two antlerless seasons (Table 47). The sex/age ratio of the deer sampled was 0.01 males:female:0.79 fawns. Big Game Hunter Questionnaire data indicates a considerably lower fawn to doe ratio of 0.42:1 in the harvest suggesting some bias in the reporting of hunters.

Table 47. Sex and age of mule deer sampled at WMZ 10 check stations during the 1989 antlerless seasons.

Age (yr.)	Number Sampled		Total
	Female	Male	
0.5	130	126	256
1.5	79	7	86
2.5	96	0	96
3.5	67	0	67
4.5	27	0	27
5.5	21	0	21
6.5	11	0	11
7.5	5	0	5
8.5	7	0	7
9.5	4	0	4
<9.5	7	0	7
Total	454	133	587

- Sex ratio of fawns was 0.97 males per female. Females of all age classes comprised 77.3% of the sample. Recorded mean fawn weights were 23 kg (s=4 kg; Range 16 - 38 kg) for 99 males and 21 kg (s=4 kg; Range 11 - 36 kg) for 109 females.
- The number of yearling females sampled is considerably lower than the number of 2.5 year old females (Table 47), suggesting poorer fawn survival in 1988 than in 1987. The 1988 drought may have played a role.

4. Archery

- A total of 1,013 active bowhunters harvested 369 mule deer on either-sex and antlerless licences in 1989 (Table 48). Hunter success increased somewhat and hunter-days/animal increased as archers spent more time afield after mule deer as compared to 1988.
- Hunters in the either-sex season in combined WMZ 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, and 44 to 47 experienced a success rate of 32%, an increase from 28% in 1988, while hunter success in WMZ 9 and 10 also increased from 34 to 54%, respectively.
- The success rate for the antlerless season in combined WMZ 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 45 and 46 increased from 20% in 1988 to 24% in 1989. The success rate in WMZ 10 demonstrated the greatest increase going from about 11% in 1988 to 50% in 1989.
- The either-sex harvest structure was 2.11 bucks:doe:0.55 fawns compared to 2.26 bucks:doe:0.33 fawns in 1988.

Table 48. Estimated hunter success and harvest pressure during the mule deer archery season, 1989.

Grassland WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Hunter Days	Hunter Days/ Animal	Days/km² In Zone
Either-sex									
1	770	772	247	32.1	247	3.18:1:0.82	5,006	20.3	0.6016
9[a]	75	75	44	58.3	44	1.83:1:0.17	294	6.7	0.0885
10	94	94	47	50.2	47	2.75:1:0.00	475	10.1	0.1339
12	18	18	12	66.7	12	5.00:1:0.00	84	7.0	0.2442
Total	957	960	350	36.5	350	2.91:1:0.55	5,858	16.7	0.0918
Antlerless									
1	33	33	8	24.2	8	0.00:1:0.33	206	25.8	0.0248
9[a]	6	6	3	50.0	3	0.00:1:0.00	23	7.6	0.0067
10	17	17	8	50.0	8	0.00:1:0.00	61	7.6	0.0173
Total	56	56	19	33.9	19	0.00:1:0.14	290	15.3	0.0190

[a]Actual data unavailable for WMZ 9. Data from WMZ 10 used to estimate harvest.

5. Muzzleloading

- As in 1988, muzzleloading hunters had a very successful season with 511 hunters in the field harvesting 334 mule deer (Table 49), a significant increase from 1987 owing to an increase of 125 licences in either-sex quotas and 50 licences in antlerless quotas.
- Hunter success was estimated to be 67% in the either-sex season and 62% in the antlerless season compared to 71% and 76%, respectively, in 1988. An average of 5.6 days were required for a muzzleloading hunter to harvest an animal in WMZ 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46.

- The either-sex harvest structure for WMZ 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 was 3.29 bucks:doe:0.71 fawns compared to 2.22 bucks:doe:0.17 fawns in 1988.

Table 49. Estimated hunter success and harvest pressure during the mule deer muzzleloading season, 1989.

Grassland WMZ	# Actual Hunters	# Zone Hunters	# Success Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Either-sex									
1	196	196	131	67.7	131	3.29:1:0.71	813	6.2	0.0977
9[a]	—	—	—	—	—	—	—	—	—
10[a]	—	—	—	—	—	—	—	—	—
12[a]	—	—	—	—	—	—	—	—	—
Total[b]	368	368	246	66.7	246	3.29:1:0.71	1,527	6.2	0.0238
Antlerless									
1	100	100	62	61.5	62	0.00:1:0.23	273	4.4	0.0328
9[a]	—	—	—	—	—	—	—	—	—
10[a]	—	—	—	—	—	—	—	—	—
Total[b]	143	143	88	61.5	88	0.00:1:0.23	387	4.4	0.0254

[a]Due to a sampling error in the Big Game Hunter Questionnaire survey, no data was collected.
[b]Actual data unavailable for WMZ 9, 10 and 12. Data from WMZ 1 used to estimate harvest over entire mule deer range.

B. POPULATION STATUS

1. Density Estimates

- Postseason trend line surveys were completed in WMZ 9, 10, 11 and 12 as a result of adequate snow cover in February. Transects were transformed into survey blocks following the surveys and confidence limits and bounds placed on each population estimate (Table 50).

Table 50. Mule deer postseason population estimates in sandhill complexes, 1988-89 and 1989-90.

WMZ	1988-89 Estimated Population	1988-89 Density	1989-90 Estimated Population	1989-90 Density
9	784(±314)	4.9/km²	818(±275)	5.2/km²
10	7,411(±806)	8.5/km²	4,905(±750)	5.7/km²[a]
11	1,212(±347)	14.4/km²	1,144(±377)	13.8/km²
12	1,432(±276)	7.8/km²	1,013(±295)	5.6/km²

[a]Density significantly different ($P < 0.05$) than 1988-89.

- Densities were statistically similar for all survey blocks except the Burstall Sandhills (WMZ 11) which had densities much higher than the other sandhill complexes (Table 50). When compared to the 1988-89 densities WMZ 9 and 11 were relatively unchanged while WMZ 10 declined from 8.5/km² to 5.7/km² and WMZ 12 declined from 7.8/km² to 5.6/km². WMZ 9 and 12 remain unchanged from 1983-86 mean densities while WMZ 10 remains below the mean density of 9.4/km² and WMZ 11 remains considerably higher than the 1983-86 mean of 5.9/km².
- WMZ 10 was subdivided by ranch or pasture association and a population estimate calculated for each (Table 51). The Yeast Ranch had a greater density of mule deer than all other ranches/pastures except the Heck Grazing Co-op Pasture. A significant decline in population density was recorded for the Yeast, Millie and Elkink ranches combined, and for the Block ranch. Estimated densities for the other ranches/pastures in WMZ 10 remained about the same as in 1988-89. These density declines in the Yeast, Millie and Elkink ranches are likely the result of increased antlerless quotas and the department program to direct antlerless hunters to these areas in 1989.

Table 51. Mule deer postseason population estimates for ranches and pastures in WMZ 10 Great Sandhills, 1988-89 and 1989-90.

Ranch/Pasture	1988-89 Estimated Population	1988-89 Density	1989-90 Estimated Population	1989-90 Density
Yeast	1,605(±358)	19.5/km²	843(±264)	10.4/km²*
Millie	378(±175)	13.4/km²	131(±98)	4.7/km²
Elkink	727(±284)	6.7/km²	328(±153)	3.1/km²
Block	2,222(±429)	8.5/km²	1,071(±256)	4.1/km²*
Davies	376(±142)	8.1/km²	324(±219)	7.0/km²
Watson	891(±311)	5.3/km²	938(±384)	5.6/km²
Heck	461(±186)	9.8/km²	515(±280)	11.0/km²
Lemsford	355(±149)	6.5/km²	388(±253)	7.1/km²
Signal	330(±127)	4.4/km²	379(±349)	5.3/km²
WMZ 10 Total	7,411(±806)	8.5/km²	4,905(±750)	5.7/km²*

*Significantly different (P<0.05) from 1988-89 estimate.

2. Population Structure: Co-operative Wildlife Management Study

- Total preseason observations in all ecozones declined somewhat from 1988 levels. Provincially, observations decreased by 24% from 7,951 in 1988 to 6,029 in 1989 (Table 52).
- The provincial preseason buck to doe ratio decreased from 0.50 bucks:doe in 1988 to 0.46 bucks:doe in 1989 (Table 52). The decrease was most noticeable in the Grassland WMZ where combined ratios decreased from 0.57 to 0.46 bucks:doe (Tables 52 and 53). These ratio changes are likely due to increasing mule deer populations. The ratios suggest that there are reasonably good buck densities in the population from the perspective of meeting sport hunter demand in 1990. Yearling bucks comprised 29% of the preseason male population, a decline from the 36% yearlings observed in 1988 (Table 54), suggesting poorer fawn survival in 1988 as compared to 1987.

Table 52. **Provincial mule deer population structure based on preseason field observations, September to November, 1986-89.**

Ecological Zone	Males[a]/Females				Fawns/Females				Sample Sizes (n)			
	1986	1987	1988	1989	1986	1987	1988	1989	1985	1986	1987	1988
Grassland	0.41	0.47	0.57	0.46	0.79	0.90	0.89	0.92	6,487	3,839	4,371	3,096
Farmland	0.34	0.37	0.44	0.42	0.70	0.62	0.69	0.86	2,807	2,163	2,764	2,173
Parkland	0.36	0.31	0.37	0.42	0.76	0.71	0.84	0.79	585	373	728	671
Fringe	0.37	0.17	0.19	0.35	0.58	0.56	0.23	0.81	37	31	44	56
Forest	0.61	0.49	0.36	0.80	0.61	0.61	0.64	0.40	69	86	44	33
All Zones	0.40	0.38	0.42	0.44	0.78	0.76	0.78	0.88	10,033	6,492	7,951	6,029

[a]males/females = (yearling males + mature males + unclassified males)/total females.

Table 53. **Grassland mule deer population structure based on preseason field observations, September to November, 1989.**

WMZ	Number of Deer			Sample (n)	Males[a]/Females	Fawns/Females
	Males	Does	Fawns			
1	72	94	94	260	0.77	1.00
2	79	127	92	298	0.62	0.72
3	10	16	16	42	0.63	1.00
4	28	81	50	159	0.35	0.62
5	27	45	27	99	0.60	0.60
6	27	143	37	207	0.19	0.26
7	21	27	28	76	0.78	1.04
8	14	27	30	71	0.52	1.11
9	24	51	29	104	0.47	0.57
10	79	114	137	330	0.69	1.20
11	16	35	27	78	0.46	0.77
12	4	5	6	15	0.80	1.20
13	101	250	315	666	0.40	1.26
14	93	289	309	691	0.32	1.07
Total	595	1,304	1,197	3,096	0.46	0.92
Per cent	(19%)	(42%)	(39%)			

[a]males = Yearling males, teen males, mature males and unclassified males.
= Yearling males = Antler Class A and B as per Co-operative Wildlife Management Study.
= Teen males = Antler Class C as per Co-operative Wildlife Management Study.
= Mature males = Antler Class D and E as per Co-operative Management Study.

- Fawn production of 0.88 fawns:doe for all ecozones combined (Table 52) was slightly higher than in 1988. The percentage of does with twins in the pre-hunt population increased in 1989 to 47% from 43% in 1988 (Table 55). Does without fawns dropped in 1989 to 43% of the doe population.
- Based upon field reports and preseason observations the mule deer resource continues to expand outside the key Grassland ecosystem. In 1983 only 15% of the preseason observations came from ecozones outside the Grassland zone and observations continue to increase from 29% in 1984, 30% in 1985, 35% in 1986, 41% in 1987 and 45% in 1988 to 51% in 1989.

Table 54. Percentage of yearling[a] and mature males[b] in the provincial mule deer population based on preseason field observations, September to November, 1987-89.

Ecological Zone[c]	1987 % Yearlings	1987 % Mature	1987 Sample Size (n)	1988 % Yearlings	1988 % Mature	1988 Sample Size (n)	1989 % Yearlings	1989 % Mature	1989 Sample Size (n)
Grassland	36	64	704	34	36	712	28	46	451
Farmland	37	63	372	39	34	421	30	45	291
Parkland	16	84	68	36	27	74	25	52	95
Fringe	–	–	3	17	67	5	56	22	7
Forest	–	–	20	25	38	5	62	23	11
All Zones	36	64	1,153	36	35	1,217	29	46	855

[a]Antler classes A and B from the Co-operative Wildlife Management Study.
[b]Antler classes D and E from the Co-operative Wildlife Management Study.
[c]Sample sizes for the Parkland, Fringe and Forest ecozones are extremely small and percentages are subject to a high degree of error.

Table 55. Percentage of mule deer does with and without fawns based on preseason field observations, September to November, 1987-89.

Ecological Zone[a]	1987 Single	1987 Twins	1987 Triplets	1987 Without Fawns	1988 Single	1988 Twins	1988 Triplets	1988 Without Fawns	1989 Single	1989 Twins	1989 Triplets	1989 Without Fawns
Grassland	45	52	3	43	52	45	2	41	45	49	5	43
Farmland	55	40	5	59	60	38	2	51	53	45	3	42
Parkland	40	58	2	56	49	46	4	46	54	42	4	47
Fringe	100	0	0	44	80	20	0	81	57	43	0	43
Forest	57	43	0	57	33	67	0	62	50	50	0	73
All Zones	48	48	3	50	54	43	2	46	49	47	4	43

[a]Sample sizes for the Parkland, Fringe and Forest ecozones are extremely small and percentages are subject to a high degree of error.

C. 1990 MANAGEMENT OBJECTIVES

- Through the mid-1980's the overall management strategy for mule deer was to stabilize populations in high density areas, thus reducing potential over-utilization of habitat and balancing numbers to a level tolerable to landowners and the hunting public.
- The strategy adopted involved selective harvest techniques. Antlerless seasons lowered the reproductive potential of the population (does) and harvested the young, already highly predisposed to natural mortality. Either-sex season quotas (75% of the harvest is bucks) were apportioned in a way that afforded quality opportunity for hunters, yet, maintained buck proportions suitable for breeding.

- **The 1990 mule deer management strategy involves the following objectives:**

1) Antlerless seasons are an integral component of the Saskatchewan mule deer management strategy. Mule deer populations (and associated landowner conflicts) in the primary Grassland WMZ continue to grow in response to recent mild winters. In these WMZ the primary objective will be to stabilize, and in some cases reduce, mule deer populations. To accomplish this objective three additional zones, WMZ 3, 7 and 14, have been listed for antlerless seasons in 1989 and licence quotas for all weapon types combined will increase by 33% - an increase of 183% over 1988 antlerless quotas.

2) Either-sex quotas will remain unchanged from 1989 to ensure sufficient buck survival for future breeding needs and recreational demand.

3) Mule deer populations in the Farmlands and Parklands continue to grow. Licence quotas will remain similar to 1989 to allow for further growth in these peripheral herds. New seasons will be offered in WMZ 21 and 41, combined and in WMZ 22 because of expanding populations.

4) For 1990 total licence quotas (all weapon types combined) will increase by 10% from 13,575 licences in 1989 to 15,000 licences (Tables 56 and 57). Important mule deer season and licence quota changes are reviewed below:

   - Either-sex rifle quotas remain unchanged from 1989 quotas. A new season in WMZ 21 and 41 combined will offer 50 licences, while a new season in WMZ 22 will offer an additional 75 licences.

   - Antlerless rifle quotas will be offered in three additional WMZ as compared to 1989. These are WMZ 3, 7 and 14. Hunters will be directed to the western portion of WMZ 3 where populations are highest. Quotas will increase in WMZ 1, 2, 5, 6, 9, 11 and 13. The quota will be reduced in WMZ 10 because of the success of the 1989 strategy to reduce high local populations. Antlerless quotas in all other WMZ will remain unchanged.

   - Hunters (all weapon types) in WMZ 11 will be offered two tags with each antlerless licence. This is being done to improve hunter response to antlerless seasons in this WMZ (only 24% of available antlerless licences were allocated in 1989) which continues to support a very high mule deer population.

   - Primitive weapon allocations will rise from the 1989 level of 1,275 archery and 575 muzzleloading licences to 1,375 archery and 775 muzzleloading licences in 1990. This is partly in response to new antlerless seasons in WMZ 11. Proportionally, more muzzleloading either-sex licences will be issued to meet demand.

Table 56. **Mule deer licence quotas for rifle seasons, 1986-90.**

WMZ	Either-sex					Antlerless				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
1	100	250	400	400	400	75	250	300	300	400
2	1,000	900	700	750[a]	750[a]	1,000	200	200	400	600
3	300	150	50	50	50	75	0	0	0	50
4	100	150	150	150	150	150	150	150	150	150
5	300	200	200	200	200	200	0	100	200	500
6	400	300	250	250	250	500	200	100	200	800
7	300	150	150	150	200	200	200	0	0	100
8	50	50	50	50	50	50	100	0	0	100
9	500	500	400	500[a]	500[a]	500	100	100	400	600
10	800	800	700	700[a]	700[a]	1,200	600	1,000	2,000[a]	1,000[a]
11	50	50	50	50	50	100	100	100	400[a]	600[a,b]
12	150	100	100	150[a]	150[a]	300	200	0	200	200
13	400	600	400	400[a]	400[a]	800	800	0	0	600
14	600	800	600	[illegible][a]	600[a]	500	0	0	0	600
18	0	0	50	50	50	0	0	0	0	0
19	200	250	300	300	300	150	250	200	200	250
21 & 41	0	0	0	0	50	0	0	0	0	0
22	0	0	0	0	75	0	0	0	0	0
23	250	250	250	250	250	0	250	0	0	0
24	250	250	150	150	150	0	0	0	0	0
25	200	150	150	200	200	0	0	0	0	0
26	250	200	150	150	150	0	0	0	0	0
27	250	150	100	100	100	0	0	0	0	0
29	150	150	150	150	150	0	0	0	0	0
30	150	150	150	150	150	0	0	0	0	0
44	0	0	0	50	50	0	0	0	0	0
45	100	100	100	100	100	0	0	0	0	0
46	150	200	250	250	250	0	0	0	75	75
47	150	200	250	250	50	0	0	0	0	0
Total	7,000	6,850	6,000	6,400	6,525	5,809	2,600	2,250	5,025	6,625

[a]Split into two-three day seasons.
[b]300 licences (two tags each).

Table 57. **Mule deer licence quotas for primitive weapons seasons, 1989 and 1990.**

WMZ	Archery			Muzzleloading		
	Season	1989	1990	Season	1989	1990
1[a]	Either-sex	850	850	Either-sex	200	300
	Antlerless	100	100	Antlerless	100	100
9	Either-sex	100	100	Either-sex	50	100
	Antlerless	50	50	Antlerless	50	50
10	Either-sex	100	100	Either-sex	100	100
	Antlerless	50	50	Antlerless	50	50
11[b]	Antlerless	0	100	Antlerless	0	100
12	Either-sex	25	25	Either-sex	25	25
Totals	Either-sex	1,075	1,075	Either-sex	375	525
	Antlerless	200	300	Antlerless	200	300
		1,275	1,375		575	825

[a]Represents combined WMZ 1 to 8, 13, 14, 15, 17 (new for 1990), 18 to 27, 29 to 31, 33 (new for 1990), 41 (new for 1990), 44 to 47.
[b]50 licences (two tags each).

D. 1990 MULE DEER SEASON

Species	Wildlife Mangement Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Mule Deer	Zones 1, 3 to 8, 11, 18, 19, 21 and 41 combined, 22 to 27, 29, 30, 44 and 45, including Elbow Wildlife Management Unit and Cypress Hills (West Block) Provincial Park	Nov. 5 - Nov. 10	one mule deer either-sex	• Licence quotas (in brackets) for each zone: 1(400), 2(750), 3(50), 4(150), 5(200), 6(250) 7(200), 8(50), 9(500), 10(700), 11(50), 12(150), 13(400), 14(600), 18(50), 19(300), 21 and 41 combined (50), 22(75), 23(250), 24(150), 25 (200), 26(150), 27(100), 29(150), 30(150), 44(50), 45(100), 46(250), 47(50).
	Zones 46 and 47	Nov. 12 - Nov. 17	one mule deer either-sex	• **Note: Primitive weapons only in Saskatchewan Landing Provincial Park.**
	Zones 2, 9, 10 and 12 to 14, including Saskatchewan Provincial Park	Nov. 5 - Nov. 7 or Nov. 8 - Nov. 10	one mule deer either-sex	
Antlerless Mule Deer	Zones 1 to 9, 12, 13 (east of Highway No. 4 only), 14 and 19.	Nov. 12 - Nov. 17	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1(400), 2(600), 3(50), 4(150), 5(500), 6(800), 7(100), 8(100), 9(600), 10(1,000), 11(300), 12(200), 13(600), 14(600), 19(250), 46(75).
	Zone 10	Nov. 12 - Nov. 14 or Nov. 15 - Nov. 17	one antlerless mule deer	• "Antlerless Mule Deer" means a doe or a 1990 fawn.
	Zone 11	Nov. 12 - Nov. 14 or Nov. 15 - Nov. 17	**two** antlerless mule deer	• In WMZ 11 two antlerless mule deer per licence may be taken.
	Zone 46	Nov. 15 - Nov. 17	one antlerless mule deer	
Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 17 to 27, 29 to 31, 33, 41, 44 to 47 combined, including Brokenshell No. 1 and No. 2, Elbow and Great Bend Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks Zones 9 and 12	Sept. 3 - Oct. 13	one mule deer either-sex	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 17 to 27, 29 to 31, 33, 41, 44 to 47 combined (850), 9(100), 10(100), and 12(25). • **Archery hunting in Provincial Parks is delayed until September 5.**
	Zone 10	Sept. 17 - Sept. 29	one antlerless mule deer	
Antlerless Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to to 27, 29 to 31, 45 and 46, combined, including Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks, and Brokenshell No. 1 and No. 2 and Elbow Wildlife Management Units Zone 9	Sept. 3 - Oct. 13	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined (100), 9(50), 10(50), 11(50). • Archery hunting in Provincial Parks is delayed until September 5. • In WMZ 11 two antlerless mule deer per licence may be taken.
	Zone 10	Sept. 17 - Sept. 29	one antlerless mule deer	
	Zone 11	Sept. 3 - Oct. 13	**two** antlerless mule deer	

Species	Wildlife Mangement Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Mule Deer (Muzzle-loading Rifles)	Zones 1 to 8, 13 to 15, 17 to 27, 29 to 31, 33, 41, 44 to 47 combined, including Elbow and Great Bend Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks Zones 9, 10, and 12	Oct. 1 to Oct. 13	one mule deer, either-sex	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 17 to 27, 29 to 31, 33, 41, 44 to 47 combined (300), 9(100), 10(100), 12(25).
Antlerless Mule Deer (Muzzle-loading Rifles)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, and 45 and 46 combined, including Elbow Wildlife Management Unit; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks Zones 9 and 10	Oct. 1 - Oct. 13	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined (100), 9(50), and 10(50), 11(50). • In WMZ 11 two antlerless mule deer may be taken.
	Zone 11	Oct. 1 - Oct. 13	two antlerless mule deer	

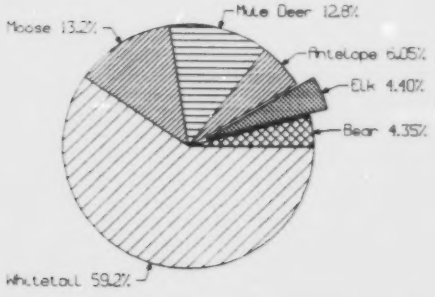
ELK

A. REVIEW OF 1989 HUNTING SEASONS

1. Licence Sales

- Total licence sales in 1989 declined 2 per cent to 3,923 licences from the previous years sales of 4,006. Regular season licence sales decreased 9 per cent to 2,599 licences whereas special season licence allocations increased by 146 licences to 1,265 in 1989 (Tables 1 and 59).

Table 58. Provincial elk licence sales, 1985-89[a].



	1985	1986	1987	1988	1989	% Change
Regular Bulls Only	3,240	2,819	2,198	2,887	2,658	-8.6%
Draw Either Sex	1,085	1,241	1,288	1,119	1,265	+13.0%
Total	4,322	4,060	3,486	4,006	3,923	-2.1%

[a]All licence sales represent final sale figures as of June 26, 1990; however, the data analysis was based on projected figures available in mid-February, 1990.

2. Hunting Activity and Harvest

Bulls Only Season

- The number of hunters in the field remained relatively unchanged from 1988 levels at about 2,700 participants. The provincial harvest, however, increased 12 per cent to 500 animals (Table 60). The harvest increases were 32 per cent and 6 per cent in the Forest Fringe and Forest zones, respectively.
- The new elk season instigated in WMZ 47 and 68, combined was successful in terms of interest and harvest, but the problem of inflated harvest estimates for WMZ 53 persists. The harvest in most zones was comparable to 1988 levels, but in combined zones 48, 49, 56 and 57, 335 elk were taken, an increase of 19 per cent. The harvest of elk in central Saskatchewan is gradually increasing but remains low compared to elk harvests further east (Table 60).

Table 59. Estimated hunter success and harvest pressure during the bull elk season, 1989.

WMZ	Number of Actual Hunters	Number of Zone Hunters	Number of Successful Hunters	Per cent Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Parkland									
47	9	8	0	0.0	0	0.00:1:0.00	17	—	0.0030
Forest Fringe									
48	199	233	30	14.9	30	25.43:1:0.00	873	29.1	0.3450
49	236	275	47	19.8	47	42.38:1:0.00	1,060	22.6	0.4424
50 (north of Hwy 55)	18	21	4	23.3	4	4.24:1:0.00	144	36.0	0.0432
53[a] (Cookson either sex season)	185	216	51	27.5	51	0.57:1:0.14	852	16.7	0.3073
Total	638	746	131	20.6	131	3.00:1:0.14	2,929	22.4	0.2655
Forest									
56	946	1,013	216	22.9	216	182.25:1:0.00	4,289	19.9	0.9074
57	309	331	42	13.7	42	38.15:1:0.00	1,369	32.6	0.4138
58	39	42	0	0.0	0	0.00:1:0.00	110	—	0.0491
59	190	203	8	4.5	8	8.48:1:0.00	793	99.1	0.1335
60	134	144	25	18.9	25	21.19:1:0.00	479	19.2	0.1223
61	103	110	38	37.0	38	33.91:1:0.00	394	10.4	0.1297
62	32	34	8	26.7	8	8.48:1:0.00	153	19.1	0.0344
63	127	136	17	13.4	17	16.95:1:0.00	585	34.4	0.1179
64	28	30	8	30.8	3	8.48:1:0.00	72	24.0	0.0202
66	8	8	0	0.0	0	0.00:1:0.00	34	—	0.0030
68	67	4	4	6.3	4	4.24:1:0.00	250	62.5	0.0601
69	20	21	0	0.0	0	0.00:1:0.00	85	—	0.0109
Total	2,002	2,145	369	18.4	369	322.12:1:0.00	8,612	23.3	0.1452
Provincial Total	2,650	2,899	500	18.9	500	13.86:1:0.14	11,558	23.1	0.1519

[a]Statistics questionable owing to erroneous Big Game Hunter Questionnaire results.

- Total recreation days declined to 11,558 in 1989. This 8 per cent decrease in recreation days is reflected in the lower harvest effort of 23 days per animal in 1989 compared to the 28 days required in 1988.

Draw Seasons

i) **Moose Mountain Park (WMZ 33 - Licence Quota = 100)**

- A telephone survey of licenced elk hunters and the Big Game Hunter Questionnaire data provided elk harvests of 58 and 56 animals, respectively (Table 61). This comparer to a mean regulated harvest of 54 animals in the 1984-89 period. The 1989 harvest structure was 0.78 bulls:cow:0.22 calves. The known unregulated harvest of elk was 25 compared to an average unregulated harvest of 40 elk for the 1983-88 period.

Table 60. Estimated hunter success and harvest pressure during the draw either-sex seasons, 1989.

WMZ	Quota	Active Hunters	Harvest	Per cent Success	Harvest Structure Bull:Cow:Calf	Hunter Days	Hunter Days/Kill
6	50 (50)[a]	50 (50)	25 (30)	50.0 (60.0)	7.00:1:1.00 (8.67:1:0.33)	225 —	9.0 —
7	200	198 (200)	18 (20)	8.9 (10.0)	1.50:1:0.00 (1.57:1:0.29)	969 —	53.8 —
33	100 (102)	100 (97)	56 (58)	56.0 (59.8)	0.78:1:0.22 (0.28:1:0.18)	372 (359)	6.6 (6.2)
50[b]	100	101	54	53.8	1.50:1:0.50	590	10.9
48[c]	600	599	254	42.5	0.51:1:0.41	2,530	9.9
54	50	50	24	47.4	0.20:1:0.20	229	9.5
58	50	46	8	16.7	0.00:1:0.00	215	26.9
59	50	52	26	16.7	0.67:1:0.00	197	7.6
63	50	50	0	00.0	—	175	—
Total	1,250	1,246 (1,245)	465 (474)	37.3 (38.1)	0.69:1:0.31 (0.64:1:0.30)	5,502 (5,489)	11.8 (11.6)

[a]Results of telephone survey in parenthesis.
[b]Includes portion of WMZ 43.
[c]Includes WMZ 48, 49, 56 and 57 combined.

ii) Fort a la Corne
(WMZ 50 and portion WMZ 43 - Licence Quota = 100)

- The licence allocation and zone definition remained unchanged from 1988. Estimates of harvest derived from hunter questionnaire data projected the harvest at 54 elk (Table 61). Field observations, however, suggested the take may have been closer to 35 animals. The structure of the kill was 1.50 bulls:cow:0.50 calves.

iii) Porcupine Forest (WMZ 48, 49, 56, 57 - Licence Quota = 600)

- The elk harvest in these combined zones was 254 animals, a 92 per cent increase from the previous year. It took half the time (10 days) to harvest an elk compared to 1988. The harvest structure was 0.51 males:cow:0.41 calves during the one week, October 16-21 season (Table 61).

iv) Cypress Hills East and Centre Blocks
(WMZ 6 and east portion WMZ 7 - Licence Quota = 50)

- Quotas remained unchanged from 1988 but the harvest of 25 animals approximated the 1987 harvest when there were twice as many licences for the zone. The harvest structure was 7.00 males per cow. No calves were reported harvested (Table 61).

v) **Cypress Hills West Block**
(West portion WMZ 7 - Licence Quota = 200)

- The 1989 licence allocation increased two-fold over that of the previous year but the harvest of elk was among the lowest of the decade. The harvest of 18 (9% hunter success) was attributed to elk seeking refuge on posted land and unregulated hunting activity prior to the regulated hunting season (Table 61). By comparison, the success rate of Alberta hunters in the Cypress Hills was 70 per cent.

vi) **Thickwood Hills (WMZ 54 - Licence Quota = 50)**

- The harvest increased to 24 animals from the 15 which were harvested in 1988. Most of the harvest was cows, which is reflected in a harvest structure of 0.20 bulls:cow:0.20 calves (Table 61).

vii) **WMZ 58 (Licence Quota = 50)**

- This was a new season in 1989, and a harvest of eight elk was recorded. From the Big Game Hunter Questionnaire data, all the elk in the harvest were cows.

viii) **Pasquia Hills (Zone 59 - Licence Quota = 50)**

- In the past two years there have been 26 and 24 elk harvested in this zone. In the 1989 hunting season, it took only eight days to harvest an elk. The harvest structure was 0.67 bulls:cow and no calves were reported harvested (Table 61).

ix) **WMZ 63 (Licence Quota = 50)**

- Although the Big Game Hunter Questionnaire indicated a nil harvest, a known harvest of six elk did take place. This was the second consecutive year of low harvest during the one week October 16-21 season.

3. Harvest Structure

Big Game Hunter Questionnaire Survey

- The harvest levels on bulls continued to increase in both the Forest Fringe and Forest zones during the regular seasons (Table 62).

Table 61. Bull harvest in the bulls only season, 1989.

Year	Forest Fringe	Forest
1989	131	369
1988	100	347

- From the either-sex season data derived from the Big Game Hunter Questionnaire, the proportion of bulls in the harvest declined in three of the four major elk producing areas of the province (Table 63). More bulls than cows were harvested from the Cypress herd for the second consecutive year.

Table 62. Draw either sex season in the four major elk producing areas of Saskatchewan.

Year	Cypress	Moose Mountain	Fringe Zones	Forest Zones
1989	3.05:1:0.28	0.78:1:0.22	0.58:1:0.40	0.39:1:0.00
1988	1.98:1:0.09	1.79:1:0.35	1.16:1:0.39	0.48:1:0.68

Age Structure from Biological Collection Program

- During the 1989 bull season across the Forest Fringe and Forest zones, the harvest of young bulls approximated the 1988 harvest except in the yearling class where there was 12 per cent fewer bulls (Table 64). The harvest of 2.5 and 3.5 year old bulls comprised a large percentage of the harvest. An examination of harvest rates on the 1986 calf crop indicates that harvest levels through the three age classes to 1989 has remained constant (Table 64). Increased survivorship and elk populations made up of high percentages of younger animals are consistent with rapidly growing populations.

Table 63. Bull age structure in the regular season harvest[a].

Year	Age					
	1.5	2.5	3.5	4.5	5.5	6.5
1989	21.7	23.3	19.2	10.8	3.3	3.3
1988	33.6	22.7	19.1	4.6	7.3	0.9
1987	21.4	7.1	14.3	10.6	7.6	3.6

[a]Values presented as per cent of total harvest.

- The either sex season age structures for the Moose Mountain elk herd have not changed markedly the past two years, but the analyses are plagued by low numbers of tooth samples. The proportion of calves and yearlings in the harvest has been similar the past two years, averaging 8 and 30 per cent, respectively.
- In the Forest Fringe and Forest zones, there was a 10 per cent increase in the 1989 calf harvest, whereas the relative proportions of yearlings, two year olds and three year olds in the harvest has remained unchanged since 1987 (Table 65). Declines were evident in the harvest of four and five year olds during 1989, followed by an increase in the "mature" segment of the population to 4 per cent.

Table 64. Age structure in the special either-sex elk seasons, Forest Fringe and Forest zones[a].

Year	Age						
	0.5	1.5	2.5	3.5	4.5	5.5	6.5
1989	25.2	26.2	12.6	9.7	1.9	1.0	3.9
1988	15.0	22.5	13.8	12.5	5.0	6.3	1.3
1987	14.7	32.4	14.7	10.6	10.6	4.7	1.2

[a]All values presented as per cent of total harvest.

- Since 1987, area quotas have been established for WMZ 48 and 49 (Forest Fringe zones) and WMZ 56 and 57, which are termed Forest zones. A comparison of age-structures (both sexes) for this area (Table 66) and the entire Forest Fringe and forested zones (Table 65) reveals a much higher percentage of younger animals across the age classes (excluding calves) in the four combined wildlife management zones.

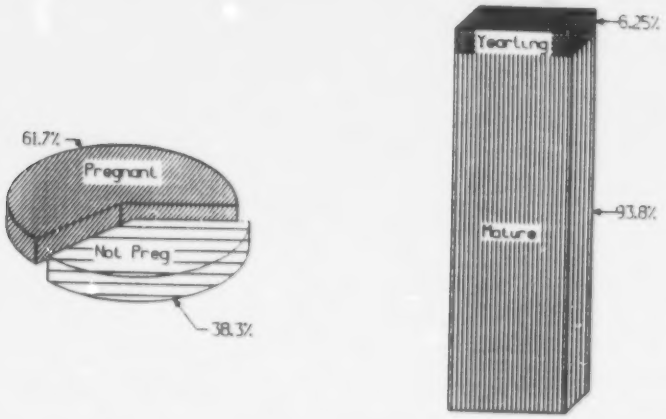
Table 65. WMZ 48, 49, 56 and 57 age structure in the special either sex seasons[a].

Year	Age						
	0. 5	1.5	2.5	3.5	4.5	5.5	6.5
1989	17.8	26.7	23.3	16.1	6.7	3.3	3.9
1988	7.3	31.6	19.4	16.4	5.5	6.7	1.2
1987	13.2	36.8	13.9	10.6	10.6	5.3	1.3

[a]Values presented as per cent of total harvest.

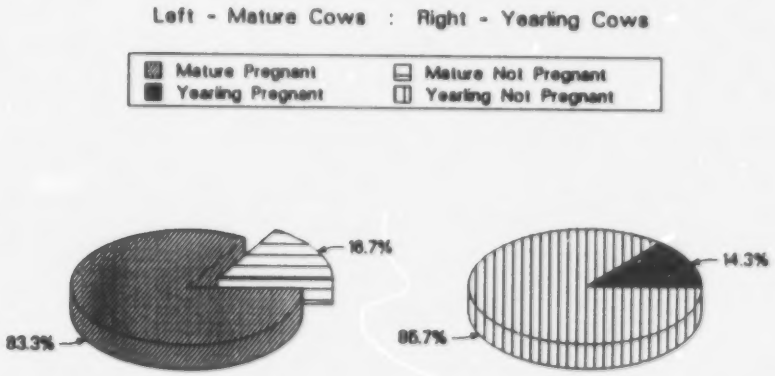
Conception Dates from Biological Collection Program

- Either-sex season elk hunters drawn in WMZ 48, 49, 56 to 59 and who harvested an adult cow, were asked to collect and turn in the reproductive tract from these animals.
- Forty-seven (47) female reproductive tracts were analyzed for pregnancy. Embryos were measured and back dated to day of conception. Unfortunately, only 25 of the 47 samples could be used in conception date analysis.
- Cows of known age and cows of unknown age (incisors not collected or lost) were compared for pregnancy. Results revealed a 62 per cent pregnancy rate (Figure 18).
- When just known age classes were compared results revealed that 83 per cent of the females 2.5 years and older were pregnant while only 14 per cent of the yearlings had been bred (Figure 19). On the average female elk do not breed until 2.5 years of age.
- A breakdown by day displayed a lengthy breeding cycle from September 13 to October 13 (Figure 20). In relation to the 1989 bull season dates (September 17 to 30), three major peaks were evident. The first occurred before the start of the bull season while the second and third followed the season (Figure 21). Conception before the season equated to 24 per cent while conception after the season was 56 per cent. Only 20 per cent of the cows were successfully bred while the two week bull season was in progress (Figure 20 and 21).



Elk Cows 2.5 Years and Older were considered Sexually Mature
Sample Sizes: Pregnant = 29, Not Pregnant = 18
Mature = 15, Yearling = 1

Figure 18. Per cent of elk cows pregnant and maturity of cows pregnant, 1989.



Elk Cows 2.5 Years and Older were considered Sexually Mature
Sample Sizes: Mature = 18, Yearling = 7

Figure 19. Per cent of known age elk cows pregnant, 1989.

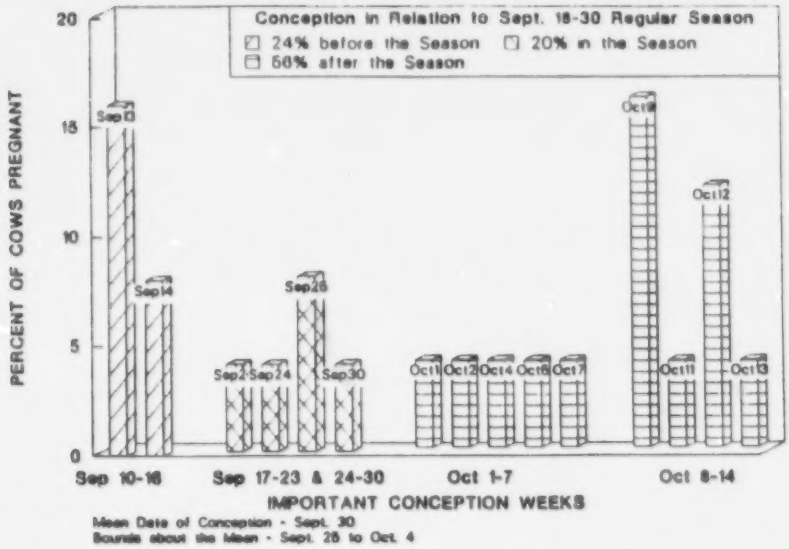


Figure 20. Elk conception dates, 1989.

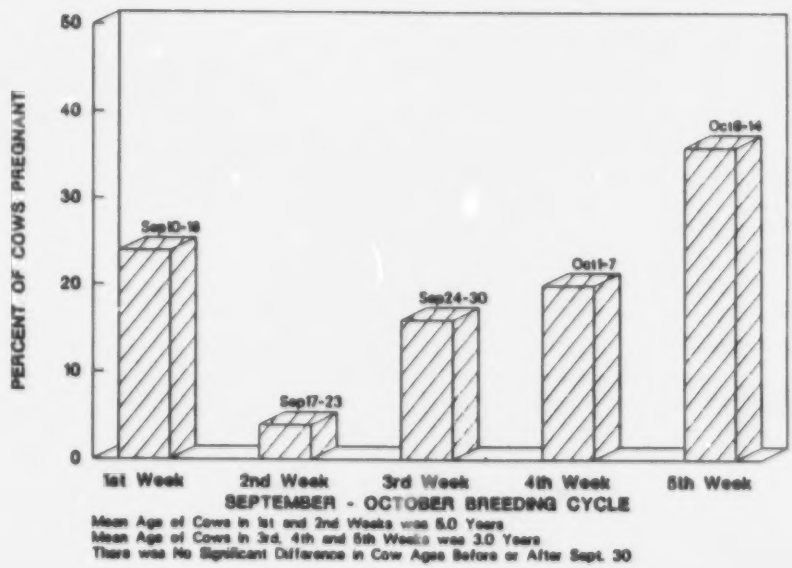


Figure 21. Elk conception by week, 1989.

B. POPULATION STATUS

1. Northern Commercial Forest

- A sex-age aerial survey flown in northeast Saskatchewan January, 1990 indicated an elk population with an overwintering herd structure of 0.17 bulls:cows:0.55 calves. The bull to cow to calf ratio is identical to the last survey flown in 1987.
- The aerial survey information is corroborated by the results of the Co-operative Wildlife Management Study which indicated a population structure in WMZ 56 of 0.18 bulls per cows (466 observations). The either sex harvest structure of 0.58 bulls per cow along Forest Fringe and 0.39 bulls per cow in the Forest is indicative of bull selection in the harvest.
- The age structure of elk harvested during the bull season across the Forest and Forest Fringe, and in the special either-sex seasons in northeast Saskatchewan, denotes young rapidly growing populations of elk. More elk are surviving in the yearling to mature age classes.
- Production estimates of 0.40 calves per cow in Forest zones and 0.50 calves per cow along the Forest Fringe denote high survivorship of calves entering the winter period.
- The harvest of bulls along the Forest Fringe and Forest zones increased 31 per cent and 6 per cent, respectively in 1989 over 1988 levels. High harvests and declining hunting days to harvest elk are also indicative of increasing elk populations.
- The management strategy of bulls only seasons in the Cumberland Delta (WMZ 60 and 61) continues to contribute to herd growth.
- Herd growth along the Forest Fringe has increased elk depredation to the point where past management strategies are no longer acceptable to landowners. The problem is particularly acute along the forest-agricultural interface in many of the wildlife management zones.
- Elk populations have continued to grow in WMZ 64 in response to the unseasonably mild winters of the late 1980's and the establishment of the Candle Lake Game Preserve in 1985.
- In more northern areas of Saskatchewan elk populations within WMZ 62, 66 and 69 are believed to be stable.
- **Elk Transplant Program**
  - In March, 1990 the department was again involved in the relocation of elk from Elk Island National Park, Alberta to forest habitats in northern Saskatchewan. The objective was to supplement wild populations which are currently below habitat carrying capacities.
  - Fifty-nine (59) elk (nine spike bulls, 11 adult bulls, 23 adult cows and 16 calves) were transported March 13, 1990 to Helene Lake, northeast of Glaslyn. After a week of "climatization" in a temporary holding pen, they were released into the adjacent forest habitat.
  - This release was the second transplant at the Helene Lake site. The surrounding Divide Forest has some good elk habitat that is presently not being utilized.
  - The release was co-sponsored by the Rocky Mountain Elk Foundation, Parks Canada, the Glaslyn Branch of the Saskatchewan Wildlife Federation and the Department of Natural Resources.

2. Preseason Wildlife Observations

- Only seven WMZ had more than 50 observations of elk during the three month study period September 1 to November 30. Three of the seven zones had more than 100 observations, all in Hudson Bay Region (Table 67). Due to the low numbers of elk observations in most WMZ, a pooling of all the observations in all the WMZ within the Parkland (N=212), Forest Fringe (N=290) and Forest (N=832) ecozones produced a minimum value of 0.40 calves per cow in each ecotype; the Forest Fringe zones exceeded 0.50 calves per cow and had the highest bull to cow ratio of 0.31 bulls per cow.

Table 66. Elk herd structure by WMZ and ecozone from preseason observations.

Ecosystem	WMZ	Sample Size	Structure Bulls:Cows:Calves
Parkland	33	72	0.09:1:0.45
Forest Fringe	48	68	0.16:1:0.42
	49	118	0.25:1:0.72
	50	94	0.45:1:0.39
Forest	56	466	0.18:1:0.47
	57	139	0.19:1:0.34
	63	64	0.32:1:0.27

3. Southern Wildlife Management Zones

Moose Mountain Park (WMZ 33)

- An aerial survey flown in February 1990 established the elk population at 388 (±32%). Despite the large confidence limits on the population estimate, the population appears to be stable. The low number of bulls in the Co-operative Wildlife Management Study and a harvest where only one-half the bulls and twice the number of cows were taken in 1989 compared to other years may be indicative of low number of bulls in this population.

Cypress Hills (WMZ 7)

- A December 1985 elk survey of the Cypress Hills counted 416 elk in Saskatchewan and 432 elk in Alberta. The herd has been growing 27 per cent annually during the 1980's. Based on the current population, there could be 1,100 elk in the Cypress herd prior to the 1990 hunting season.

Thickwood Hills (WMZ 54)

- There was no aerial survey flown for elk in this zone during the 1989-90 winter. The population is believed to be stable at 250 animals.

Fort a la Corne (WMZ 50)

- No aerial survey was flown in 1989-90 and the elk population is 300 animals.

Tiger Hills (WMZ 42)

- Reports from the field indicate there are seven distinct groups of elk totalling about 130 animals in this wildlife management zone.

C. 1990 MANAGEMENT OBJECTIVES

1) No new wildlife management zones will be opened, nor any zones deleted, from the bull only hunting season in 1990.

2) The either sex season in WMZ 53, including the Cookson Wildlife Management Unit, remains unchanged. Season dates will be November 19 to December 8, inclusive.

3) Major initiatives will be introduced to stabilize population growth and to cut into the productive segment of elk herds in the Forest Fringe zones and in the agricultural portions of the forested management zones. Allocations will be made to direct harvest to specific areas within zones and season dates designed to ensure that regional harvests during either-sex seasons will take place. An increase of 520 either-sex elk licences (42 per cent increase) is proposed, encompassing 11 different harvesting strategies.

   - The 600 licences allocated since 1987 to WMZ 48, 49, 56 and 57 combined will be re-allocated as follows to more effectively deal with crop depredation complaints and burgeoning elk populations:

     i) Creation of a new subzone made of up portions of WMZ 40, 42 and 56 (the area around Greenwater Lake Provincial Park) - 200 licences.
     ii) Combined WMZ 48 and remainder of WMZ 56 - 400 licences.
     iii) WMZ 49 and WMZ 57 - 75 and 200 licences, respectively.

   - For WMZ 58, special season licences will remain the same at 50 licences. The quota in WMZ 59 will be increased to 150 licences from 50 licences.

   - For that portion of WMZ 63 south of the Torch River, a split season in the November-December period of 40 licences each is proposed.

     The 50 licence October seasons have been unqualified failures in reducing elk herds in this area the past two years.

   - A new one week December season is proposed to curtail herd growth in the WMZ 64 elk population - 25 licences.

4) Southern Area Management Strategies

Moose Mountain Park (WMZ 33)

- Over the past few years annual aerial surveys have indicated a steady decline in the elk population. In response to this suspected population drop and continued unregulated hunting within the Park, the licence quota will be reduced from 100 in 1989 to 75 for 1990.

Fort a la Corne (WMZ 50)

- No change - 100 licences.

Cypress Hills West Block (WMZ 7)

- Due to limited access and escalating landowner and hunter complaints, two different two week seasons are proposed. A two week December season is proposed in addition to the usual late October hunt of two weeks. Total licence numbers remain unchanged at 200.

Cypress Hills East and Centre Blocks (WMZ 6 and the eastern portion of WMZ 7)

- Limited access as well as landowner and hunter complaints has resulted in a proposal to increase licence allocations to 100 from 50 and to add another week to the elk season in early December.

Thickwood Hills (WMZ 54)

- No change - 50 licences.

Tiger Hills (WMZ 42)

- In order to stabilize population growth and cut into the breeding segment of elk herds that are currently increasing on primarily privately-owned farmlands, a new either sex season is proposed - 40 licences.

D. 1990 ELK SEASONS

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Bull Elk (Sask. Residents Only)	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26 and that portion of Zone 68 south of a line running along the south boundary of Township 59, Highway No. 21 and Highway No. 699, combined including Bronson Forest Recreation Site, Zones 48, 49, 50 (north of Highway No. 55), 56 to 64, 66 and 69, including Leaf Lake Wildlife Management Unit and the northeast corner of Meadow Lake Provincial Park north of the 17th baseline	Sept. 17 - Sept. 29	one antlered elk	• "Antlered Elk" means any elk having an antler or antlers at least 15 centimetres in length as measured from the outside of the skull to the tip. • Successful applicants for a special elk licence are not eligible to purchase a regular elk licence. • **Note: Watch for signs in Meadow Lake Provincial Park.** • **Note: Hunters will be restricted to designated trails within the Cookson Wildlife Management Unit.**
	Zone 53, including Cookson Wildlife Management Unit	Nov. 19 - Dec. 8	one elk, either sex	
Archery Elk (Sask. Residents	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26 and that portion of Zone 68 south of a line running along the south boundary of Township 59, Highway No. 21 and Highway No. 699, combined including Bronson Forest Recreation Site, Zones 48, 49, 50 (north of Highway No. 55), 53, 56 to 64, 66 and 69, including Leaf Lake Wildlife Management Unit and the northeast corner of Meadow Lake Provincial Park north of the 17th baseline	Aug. 27 - Sept. 8	one elk, either sex	• Archery elk licences are not valid in the regular rifle season. • Hunters who purchase an archery elk licence may not purchase any other elk licence in 1990. • Archery elk licences may be purchased only at SPRR offices throughout Saskatchewan. • Meadow Lake Provincial Park north of the 7th baseline, and Bronson Forest Recreation Site will be open September 5.
Either Sex Elk	Combined Zones 6 and 7 (east of Highway No. 271 and Grid Road No. 615)	Nov. 5 - Nov. 17 and Dec. 3 - Dec. 8	one elk, either sex	• Licence quotas (in brackets) for each zone: 6 and the east portion of 7 combined (100), the west portion of 7(200), 33(75), portions of 40, 42 and 56 (Greenwater area), combined (200), 42(40), 43 and 50 combined (100), 48 and portions of 56 (excluding Greenwater area), combined (400), 49(75), 54(50), 57(200), 58(50), 59(150), 63(80), 64(25).
	Zone 7 (west of Highway No. 271 and Grid Road No. 615, including Cypress Hills (West Block) Provincial Park	Oct. 22 - Oct. 27 and Dec. 10 - Dec. 15 or Oct. 29 - Nov. 3 and Dec. 3 - Dec. 8	one elk, either sex	
	Zone 33, including Moose Mountain Provincial Park	Oct. 22 - Oct. 27	one elk, either sex	
	That portion of Zone 42 south of Highway No. 3 and west of Highway No. 6 and east of Highway No. 20	Oct. 29 - Nov. 3	one elk, either sex	

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Either Sex Elk (cont'd.)	Combined Zones 43 (west of Highway No. 35 and north of Highway No. 335) and Zone 50 (south of Highway No. 55), including Fort a la Corne Wildlife Management Unit	Aug. 27 - Sept. 15	one elk, either sex	
	Combined Zones 40 (east of Highway No. 35 and north of Highway No. 49) and 42 (east of Highway No. 35) and the northwest portion of 56, including Greenwater Lake Provincial Park	Oct. 15 - Oct. 20 or Oct. 29 - Nov. 3	one elk, either sex	
	Combined Zones 48 and the portion of Zone 56 (excluding the Greenwater area)	Oct. 15 - Oct. 20 or Oct. 29 - Nov. 3	one elk, either sex	
	Zones 49, 57, 58 and 59.	Oct. 29 - Nov. 3	one elk, either sex	
	Zone 54 (south of Highway No. 3).	Nov. 5 - Nov. 17	one elk, either sex	
	That portion of Zone 63 south of the Torch River (Nipawin Provincial Park closed).	Nov. 19 - Nov. 24 or Dec. 3 - Dec. 8	one elk, either sex	
	Zone 64	Dec. 3 - Dec. 8	one elk, either sex	

PRONGHORN ANTELOPE

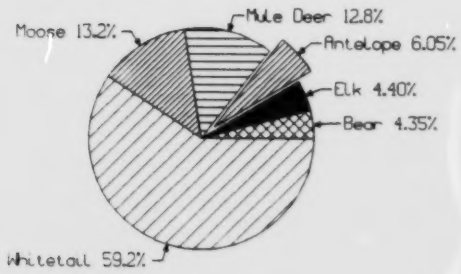
A. REVIEW OF 1989 HUNTING SEASONS

1. Licence Sales

- A total of 5,000 rifle and 400 archery licences were available to sport hunters in 1989. Licences were sold to 5,047 rifle and 344 archery hunters (Tables 1 and 67).
- The increase in available licences resulted in a 16 and 14 per cent increase in rifle and archery sales, respectively.

Table 67. Provincial pronghorn antelope draw licence sales, 1985-89[a].

1989 Big Game Licence Sales



	1985	1986	1987	1988	1989	% Change
Rifle	2,921	2,983	3,461	4,339	5,047	+16.3%
Archery	260	296	252	301	344	+14.3%
Total	3,181	3,279	3,713	4,640	5,391	+16.2%

[a] All licence sales represent final sale figures as of June 26, 1990; however, the data analysis was based on projected figures available in mid-February, 1990.

2. Hunting Activity and Harvest

- The 1989 provincial antelope harvest was estimated at 4,407 animals compared to 3,705 animals taken in 1988 (Table 68). This represented a 19 per cent increase.
- Rifle hunter success was 88 per cent in 1989, up slightly from 85 per cent in 1988.
- Success rate for rifle hunters were generally high in all zones with WMZ 25 being the highest at 100 per cent and the low being WMZ 14 at 73 per cent (Table 69).
- Rifle hunters spent 8,363 days in the field in 1989 compared to 8,087 in 1988, an increase of 3 per cent. This rise in recreation days was partially attributed to the 16 per cent increase in licence allocations in 1989. As was the case in the previous year the extended season, which ran through the mule deer season, also contributed to the rise in hunter recreation days in 1988.

Table 68. Provincial antelope harvest, hunting success and pressure, 1989.

	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Archery	335	335	90	27.0	90	9.00:1:0.33	1,669	18.5	0.0258
Rifle									
Grassland	4,501	4,507	3,960	88.0	3,960	3.61:1:0.14	8,307	2.1	0.1282
Farmland	328	333	296	90.4	296	2.83:1:0.05	560	1.9	0.0186
Total	4,829	4,840	4,256	88.1	4,256	2.55:1:0.11	8,867	2.1	0.0882
Muzzleloader	177	177	62	70.1	62	8.83:1:0.50	347	5.6	0.0464
Provincial Total	5,341	5,374	4,407	82.5	4,407	5.92:1:0.21	10,883	2.5	0.1147

Table 69. Projected hunting statistics by licence type for antelope, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland Archery									
01[a]	335	335	90	27.0	90	9.00:1:0.33	1,669	18	0.2006
Total	335	335	90	27.0	90	9.00:1:0.33	1,669	18	0.2006
Grassland Rifle									
01	100	101	95	95.0	95	1.38:1:0.23	176	2	0.0211
02	1,097	1,103	953	86.9	953	4.51:1:0.11	1,940	2	0.1824
03	902	907	767	85.0	767	1.43:1:0.09	1,609	2	0.3744
04	75	75	57	75.4	57	14.00:1:0.00	113	2	0.0139
06	150	151	140	93.1	140	3.50:1:0.25	217	2	0.0517
07	327	329	254	77.7	254	2.54:1:0.11	723	3	0.3816
08	351	353	337	95.9	337	3.25:1:0.04	510	2	0.1503
09	676	680	580	85.7	580	2.33:1:0.09	1,411	2	0.4106
10	398	401	360	90.6	360	2.39:1:0.11	688	2	0.1941
12	302	304	262	86.8	262	2.37:1:0.16	558	2	1.6233
14	300	302	216	72.1	216	2.04:1:0.30	708	3	0.1270
Total	4,678	4,706	4,020	85.9	4,020	2.53:1:0.12	8,654	2	0.1335
Farmland Rifle									
19	102	104	93	91.4	93	2.00:1:0.00	176	2	0.0191
24	76	77	62	81.2	62	2.50:1:0.25	166	3	0.0344
25	75	76	76	100.0	76	3.25:1:0.00	99	1	0.0170
26	75	76	65	87.0	65	5.00:1:0.00	120	2	0.0265
Total	328	333	296	90.4	296	2.83:1:0.05	560	2	0.0186

[a]Combined WMZ 1 to 15, 18, 19 and 23 to 26.

- There was a small drop in hunter days per animal for rifle hunters, from 2.19 days in 1988 to 2.08 days in 1989.
- Combined success rate for the muzzleloader hunters was 70 per cent for WMZ 7 and 14.

3. Harvest Structure

- The harvest structure for the rifle season was 3.61 males:doe:0.14 kids in the Grassland ecozone and 2.83 males:doe:0.05 kids in the Farmlands (Table 68).
- Provincially, the harvest structure was 5.92 males:doe:0.21 kids for all season types combined.
- Hunters in WMZ 4 had the highest buck to doe harvest proportionally to all other zones, while WMZ 1 had the lowest buck to doe harvest structure (Table 69).

4. Archery

- An estimated 335 active archery hunters harvested 90 antelope with a 27 per cent success rate compared to a 20 per cent success rate in 1988 (Tables 68 and 69).
- The 1989 provincial harvest structure for archery was 9.00 bucks:doe:0.33 kids, the proportion of bucks was down from 12.25 in the 1988 season.
- Archery hunters required an average of 18 days to harvest an antelope compared to 22 days in 1988.

B. POPULATION STATUS

1. Density Estimates

- The 1989 antelope survey was flown on June 26 to 29 covering the traditional blocks in WMZ 2, 3 and 9.
- Two additional blocks were flown which included coverage of farmland areas in WMZ 8 and 10.
- Based on a comparable survey in 1988, density estimates represent a 14.3 per cent increase in 1989 (Table 70).
- Survey block 3A had the greatest increase relative to 1988, increasing 43 per cent. On the other hand, block 2A declined by 11 per cent.
- Survey blocks 8A (75% cultivated) and 10A (85% cultivated), areas with significant proportions of cultivated farmland, revealed densities calculations of 0.22/km^2 and 0.29/km^2, respectively.

Table 70. Population densities and sex/age composition for antelope in Saskatchewan, 1989.

	Density							Population Structure											
							%	Buck:doe				Kid:doe				Kid:adult doe[b]			
Survey[a] Block	Yearling Males	Adult Males	Does	Kids	Total	Population Density (km²)	Change Over 1988	89	88	87	86	89	88	87	86	89	88	87	86
2A 645 km²	78	111	347	201	737	1.14	-10.9	54	55	52	53	58	78	110	83	75	106	136	103
2B 676 km²	73	109	258	169	609	0.90	+ 7.1	71	48	73	50	66	72	95	96	91	92	136	118
3A 1282 km²	114	229	653	411	1,407	1.10	+42.9	53	51	38	63	63	52	95	88	76	62	101	119
9A 420 km²	25	68	157	127	377	0.90	+ 2.3	59	56	100	72	81	65	83	78	96	78	135	119
Total 3023 km²	290	517	1,415	908	3,130	1.04	+14.3	57	52	64	59	64	65	96	87	81	82	126	111
8A 246 km²	5	7	23	18	53	0.22	–	50	–	–	–	78	–	–	–	100	–	–	–
10A 207 km²	3	8	31	17	59	0.29	–	35	–	–	–	55	–	–	–	61	–	–	–
Total 3476 km²	298	532	1,469	943	3,242	0.93	–	57	–	–	–	64	–	–	–	81	–	–	–

[a] These survey blocks represent areas that were traditionally censused during the transect aerial survey.

[b] Adult does represent mature animals two years and older. This category was defined using the procedure of identifying yearling males and assuming an equal number of yearling females in the total doe segment of the population. This is subtracted from the total number of does observed to derive an estimate of does potentially producing kids, ie. does two years and older.

2. Population Structure

- In 1989, on survey blocks 2A, 2B, 3A, 8A, 9A and 10A, the sex and age composition was gathered as well as the density information (Table 70).
- Buck to doe ratios grew somewhat from 0.52 bucks:doe in 1988 to 0.57 bucks:doe in 1989. Actual numbers of bucks observed on the surveys increased by 5 per cent. Both the number of observed yearling bucks and mature bucks rose in 1989 relative to the 1988 survey.
- Antelope productivity in terms of kids per doe fell slightly from the 1988 level of 0.65 kids:doe to 0.64 kids:doe in 1989, although the total number of kids observed actually increased on the comparable survey blocks (Tables 71 and 72).

Table 71. Antelope kid to doe ratios estimated by July aerial surveys, 1982-89.

WMZ	1982	1983	1984	1985	1986	1987	1988	1989
1	0.76	0.50	N/A	0.25	—	—	—	—
2	0.46	0.86	0.52	0.58	0.83	1.06	0.76	0.61
3, 7, 8	0.51	0.59	0.51	0.61	0.88[a]	0.95[a]	0.53[a]	0.63[c]
6	0.12	2.10	0.44	0.61	—	—	—	—
9, 10	0.50	0.88	0.71	0.70	0.78[b]	0.83[b]	0.65[b]	0.77
11, 12, 13, 14	0.76	1.22	0.60	0.97	—	—	—	—
19, 22, 24, 29	0.77	—	—	—	—	—	—	—
26	0.48	0.68	0.63	0.64	—	—	—	—
Average	0.51	0.85	0.56	0.63	0.84	0.96	0.65	0.64

[a]Represents the kid:doe ratio from WMZ 3, only.
[b]Represents the kid:doe ratio from WMZ 9, only.
[c]Represents the kid:doe ratio from WMZ 3 and 8, only.

Provincial kid to doe ratios from July aerial surveys, 1965-1981:

1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
0.54:1	0.85:1	0.82:1	0.74:1	0.87:1	0.77:1	0.70:1	0.60:1	0.68:1	0.56:1	0.64:1	0.81:1	0.65:1

1978	1979	1980	1981
0.74:1	0.90:1	0.68:1	0.69:1

Table 72. Antelope kid:mature doe (2+ yrs) ratios estimated by July aerial surveys, 1983-89[a].

	Yearling Males	Adult Males	Yearling[b] Females	Adult Females[c]	Kids	Kids:Mature Does
1983	90	165	90	467	492	1.05
1984	211	190	211	502	465	0.93
1985	95	164	95	476	394	0.83
1986	53	78	53	221	186	1.11
1987	169	287	169	543	686	1.26
1988	253	407	253	1,009	826	0.82
1989	298	532	298	1,469	943	0.81

[a] Includes data from only those survey blocks where yearling males were segregated by observers.
[b] Yearling females are distinguished using the procedure of identifying yearling males and assuming the same number of yearling females in the female segment of the observed population.
[c] Includes yearling females.

- Reproductive rates, as expressed by the ratio of kids per doe, remain below long-term average levels. The 1989 decline in kid to doe ratios may be a residual effect of the severe drought in 1988 through poor physiological condition of does and the longer term impact of deteriorated forage quality. An opposing view is that the survival of the previous year's kid crop was very high and, thus, these young non-producing animals constitute a much higher proportion of the adult doe component of the population. This too would result in lower kid to doe ratios, however, kid per mature doe ratio presented in Table 72 appears to contradict this last explanation of low kid to doe ratios.
- Despite the apparent low reproductive rate for 1989, density estimates indicated that antelope populations were stable or slowly expanding throughout the provincial range.

C. 1990 MANAGEMENT OBJECTIVES

- The antelope population in Saskatchewan has been increasing over the last few years as a result of relatively mild winters and years of good to excellent reproduction.
- Landowners throughout the antelope range (Grassland and Farmland ecozones) have expressed concern about depredation on field crops. This problem is one that the department will need to take into consideration in future management strategies. The high population densities in some zones may be contributing to depredation problems.
- It appears that antelope are attracted to agricultural produce during the fall, winter and spring periods where crops are planted in close proximity to wintering areas. Mild winters with very little snow cover make this new growth attractive and available to large herds of antelope.
- The species population objectives set by the department for the mid-1980's are presently being met but hunting demand still exceeds the supply of animals, although some allocated licences were not taken up by hunters in 1987 and 1988, respectively.
- **The 1990 antelope management strategy involves the following objectives:**
  1) An increase of 1,400 either-sex licences is tentatively proposed for the 1990 rifle season. The total quota of 6,400 licences available in WMZ 1 to 14, 19 and 23 to 27 represents a 28 per cent increase from the 1989 allocation level (Table 73).
  2) WMZ 27 has been included this year to harvest an expanding population.
  3) WMZ 14 and 24 to 27 have been amalgamated to ensure access of animals.
  4) The 1990 season is again proposed to extend into the regular and antlerless mule deer seasons to accommodate the antelope hunters who also hold a mule deer licence and wish to hunt both species in a single trip.
  5) Archery licence quotas will be increased to accommodate all applicants.
  6) The three day muzzleloading rifle antelope season will be expanded into all zones except WMZ 3. As in 1989, hunters will be drawn from one pool and be allowed to hunt the first three days of the season with a muzzleloader rifle, only and then continue to hunt with a rifle or any legal primitive weapon.

7) WMZ 3 firearm antelope season will open one week later (October 29) per the long-standing agreement between PFRA pasture patrons and DNR. Under this agreement, the firearm antelope season will not commence before October 28 of any year to allow for undisrupted removal of cattle from PFRA pastures. As a result of this later season date, no antelope season specific to muzzleloading will be offered in 1990. The PFRA patrons-DNR agreement does not effect the antelope archery season which will commence the same date (September 3) as the rest of the province.

Table 73. Antelope licence quotas for years 1987-90.

WMZ	Regular 1990	Regular 1989	Regular 1988	Regular 1987
1	200	100	100	50
2 & 5 combined	1,300	1,100	1,100 (5)150	850
3	1,100	900	750	650
4	200	75	75	50
6	250	150	100	75
7	400	325	325	250
8 & 11 combined	500	350	275	200
9	800	675	600	500
10	600	400	300	175
12 & 13 combined	400	300	300	225
14	500	300	300	225
19 & 23 combined	150	100	100	75
24[a]	—	75	75	50
25[a]	—	75	75	50
26[a]	—	75	75	50
27[a]	—	—	—	—
Total	6,400	5,000	4,550	3,625
Archery	450	400	300	300
Grand Total	6,850	5,400	4,850	3,925

[a] Combined with WMZ 14 in 1990.

D. 1990 ANTELOPE SEASON

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Antelope	Zones 1, 2, 4 to 14, 19, 23 to 27, including Saskatchewan Landing Provincial Park	Oct. 22 - Nov. 17	one antelope either sex	• Note: October 22 to 24 inclusive, a muzzleloading rifle only may be used to hunt antelope in Zones 1, 2, 4 to 14, 19, 23 to 27.
	Zone 3	Oct. 29 - Nov. 17	one antelope either sex	• Primitive weapons only in Saskatchewan Landing Provincial Park. • During the muzzleloading rifle portion of the antelope season hunters may wear camouflage clothing.
Antelope Archery	Zones 1 to 15, 18, 19, 23 to 27, including Saskatchewan Landing Provincial Park	Sept. 3 - Oct. 13	one antelope either sex	• Note: The opening of Saskatchewan Landing Provincial Park is delayed until September 5.

BLACK BEAR

A. REVIEW OF 1989 HUNTING SEASON

1. Licence Sales

- First licence sales (all residency types combined) for the 1989 spring and fall bear seasons declined 16 per cent from 4,610 in 1988 to 3,879 in 1989 (Tables 74 and 75).
- There were no second licences sold in 1989 due to the removal of such licence from sale.
- No free permits were issued for WMZ 58-61 in 1988.
- Total licence sales dropped in 1989 to 3,879 from the approximate 5,000 sales mark maintained between 1984 and 1988.
- Sales shifted to a lower proportion of non-residents at 25 per cent in 1989 (Table 74).

Table 74. Provincial bear licence sales by hunter residency, 1985-89[a].

	1985	1986	1987	1988	1989	% Change
Sask. Resident 1st Bear	3,601	4,303	3,817	3,353	2,903	-13.4%
Sask. Resident 2nd Bear	319	460	393	284	—	—
Total	3,920	4,763	4,210	3,637	2,903	-13.4%
Canadian Resident 1st Bear	67	95	92	95	70	-26.3%
Canadian Resident 2nd Bear	3	6	12	7	—	—
Total	70	101	104	102	70	-26.3%
Non-resident 1st Bear	380	634	891	1,162	906	-22.0%
Non-resident 2nd Bear	22	115	123	244	—	—
Total	402	749	1,014	1,406	906	-22.0%
%Non-Saskatchewan Resident	10%	15%	21%	29%	25%	
Total Sales	4,392	5,614	5,328	5,145	3,879	-24.6%

[a] All licence sales represent final sale figures as of June 26, 1990; however, the data analysis was based on projected figures available in mid-February, 1990.

1989 Big Game Licence Sales

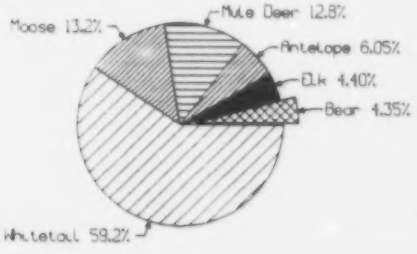


Table 75. Bear licence sales and per cent resident hunter success by licence type, 1986-89[a].

	Licence Sales				Per cent Hunter Success			
Licence Type	1986	1987	1988	1989	1986	1987	1988	1989
1st Licence[b]	4,813	4,800	4,610	3,879	37%	36%	26%	28%
2nd Licence[c]	589	528	535	—	37%	55%	50%	—
Free Permit	2,489	2,375	—	—	27%	21%	—	—
Total	7,396	7,703	5,145	3,879	37%	34%	29%	28%

[a] All licence sales represent final sale figures as of June 26, 1990; however, the data analysis was based on prejected figures available in mid-February, 1990.
[b] Includes all lst licences regardless of residency.
[c] Includes all 2nd licences regardless of residency.

2. Hunting Activity and Harvest

- The provincial harvest in 1989 was estimated to be 805 animals for Saskatchewan residents (Table 76), which represents a 36 per cent decline in harvest from 1988. However, if the second licence harvest value for 1988 (161) is removed, the drop in first licence harvest between years is 27 per cent.
- Sixty-eight (68) per cent of the harvest was from Forest zones. This was somewhat lower than past years (range since 1985 was 70 to 79%).
- Hunter success was estimated to be 28 per cent for first licence holders, compared to 29 per cent in 1988.

Table 76. Provincial bear harvest and hunter activity (lst, 2nd and free bear licences combined) by ecological zone, 1986-89, based upon resident hunter success rates.

Ecological Zone	Actual Hunters				Harvest				Per cent Hunter Success			
	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
Parkland	208	202	229	162	93	74	66	68	44.7	36.6	28.8	42.0
Fringe	950	710	829	574	460	278	290	184	48.4	39.2	34.9	32.1
Forest	3,671	2,470	3,277	2,107	1,387	977	886	548	37.8	37.6	27.0	26.0
	(5,235)[a]	(3,925)			(1,810)	(1,310)			(34.6)	(33.4)		
Shield	57	43	62	25	28	9	15	5	49.1	20.9	24.2	20.0
Total	4,886	3,425	4,397	2,868	1,968	1,338	1,257	805	40.3	39.1	28.6	28.1
	(6,450)	(4,880)			(2,391)	(1,671)			(37.1)	(34.2)		

	Harvest Structure				Hunter Days				Hunter Days/Animal			
	1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
Parkland	3.19:1:0.69	3.18:1:0.18	2.05:1:0.25	12.00:1:1.00	1,015	812	951	975	10.9	10.9	14.4	14
Fringe	1.42:1:0.27	1.47:1:0.10	2.26:1:0.12	3.25:1:0.38	4,214	2,741	3,468	3,169	9.2	9.9	11.9	17
Forest	2.65:1:0.32	2.17:1:0.19	2.81:1:0.24	2.81:1:0.35	14,978	10,469	13,941	10,074	10.8	10.7	15.7	18
	(2.49:1:0.56)	(2.11:1:0.27)			(20,275)	(16,647)			(11.2)	(12.7)		
Shield	0.91:1:0.00	6.00:1:3.00	15.30:1:0.00	4.85:1:0.00	227	185	250	121	8.1	20.6	16.7	25
Total	2.24:1:0.46	2.04:1:0.17	2.65:1:0.21	3.20:1:0.37	20,434	14,207	18,610	14,340	10.8	10.6	14.8	18
	(2.62:1:0.19)	(2.19:1:0.47)	(2.02:1:0.23)		(25,731)	(20,385)			(10.4)	(12.2)		

[a]Free bear permits included in parenthesis.

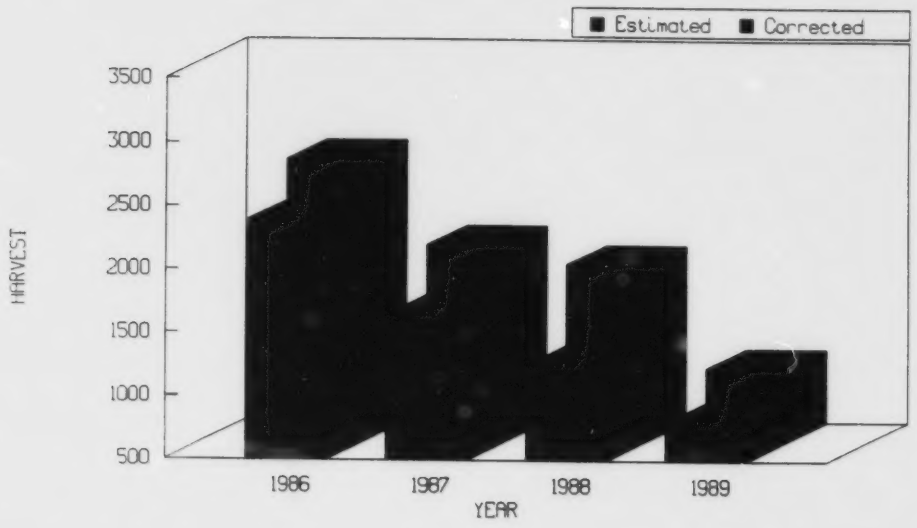


Figure 22. Harvest estimates and corrected estimates for sport harvested black bears in Saskatchewan from 1986-89.

- Bear hunting supplied an estimated 14,340 hunter days of recreation, a decline of 23 per cent from 1988. However, if the 1988 second bear permit associated days (1,127) are again ignored, the hunter days declined 18 per cent from 1989 to 1988.
- Spring versus fall harvest results are not available for either the 1989 or 1988 seasons.
- It has been suspected that non-resident harvest rates tend to be greater than resident rates. In 1989, data from outfitters has confirmed this suspicion. Resident success rates for 1989 were estimated to be 28 per cent while non-resident rates were estimated at 65 per cent. In previous years, verbal estimates ranging from 75-100 per cent were received from outfitters. Correction factors of 2.34 for 1989 and from 1.50 to 2.78 (based on 75% success rates) were applied to licence sales proportions from 1986-89 and showed harvest underestimations ranging from 11.9 to 34.0 per cent (Figure 22).

3. Harvest Structure

- The provincial harvest structure was 3.20 boars:sow:0.37 cubs (Table 76). In terms of boar harvest this harvest structure was higher than other values since 1985 (range 2.02 to 2.65). Likewise for animals reported as cubs, with the exception of 1986, this is the highest cub value since 1984.

4. Elimination of Free Bear Licences - WMZ 58-61

- Free bear licences, for other big game hunters in WMZ 58-61, were eliminated in 1988.
- Second bear licences were eliminated in 1989.
- Low bear populations and a constant demand for bear hunting in Saskatchewan necessitated removal of the option to acquire a second licence.

B. POPULATION STATUS

- Bear density information was unavailable in 1989-90. Indications are that the bear population is low and will remain below the long-term population level for the foreseeable future. This position is reinforced by a general trend of increasing days per animal harvested and decreasing hunter success indices being reported by resident hunters (Figure 23).

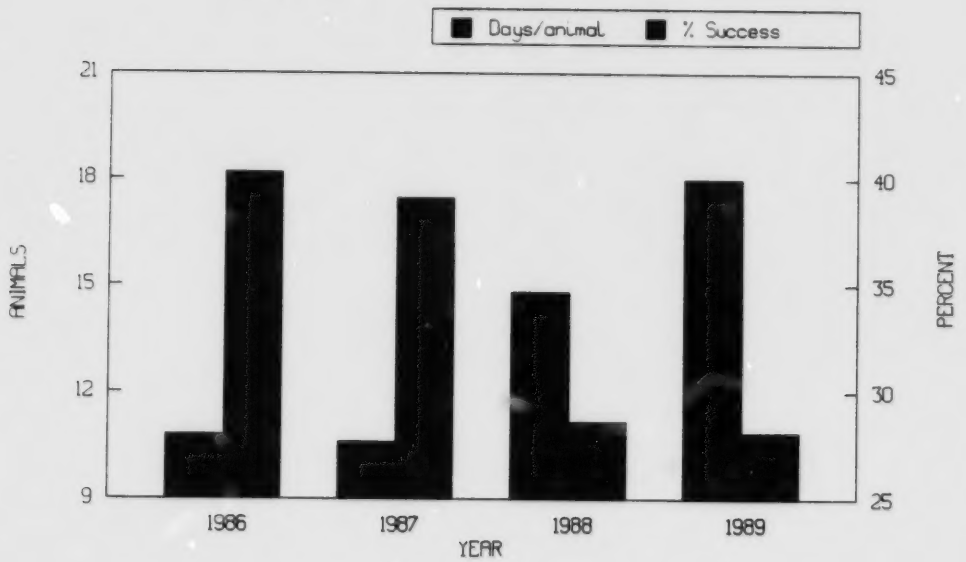


Figure 23. Days/animal harvested and per cent resident hunter success in Saskatchewan for the period 1986-89.

C. CURRENT ISSUES

1. Bear Hunting Pressure

- Licence sales figures for 1989 indicate bear hunting in Saskatchewan has reduced in popularity. While total sales remained relatively constant during the 1984-88 period, there was a 150 per cent increase in licence sales from the mid-1970's to 1989, and hunter-days approximately doubled between 1980 and 1989.
- In recent years, guides and outfitters have recognized that a sizeable commercial market was available for providing services to bear hunters. The non-resident component of total licence sales has grown significantly during the 1985-88 period. In 1985, non-resident hunters comprised 10 per cent of total sales, increasing to 15, 21 and 29 per cent for 1986, 1987 and 1988 respectively. The 1989 level has fallen to 25 per cent which is still a significant portion of the sales. It is possible that interest in bear hunting has stabilized or it could be in reaction to the decreasing bear population and its attendant publicity. New Outfitter and Guide Regulations requiring non-residents to use the services of a guide may also have contributed to lower licence sales.

2. Population Levels

- Historically, the black bear was viewed as a predator and a nuisance wildlife species. In recent years, bears have been elevated in status, and are now recognized as a big game animal. The harvest age information obtained from Saskatchewan in 1988 and 1989 provides data on the bear population structure (Figures 24, 25, 26, 27 and 28). These data are based primarily upon the non-resident harvest.

3. Reproductive Biology

- Reproductive tracts have been examined from 87 female bears.
- The above sample revealed that:

  1) only by the age of six had all females potentially given birth at least once (16.7% at age three, 21.1% at age four, and 21.4% at age five);
  2) the average litter size was 2.36 young (sd=0.87, range=1 to 5, n=47), and
  3) they become reproductively senile at about age 22.

4. Colour Phase Ratio

- Hunters tend to select for off-colour bears. This leads to shifts in colour phase representation in the harvest.

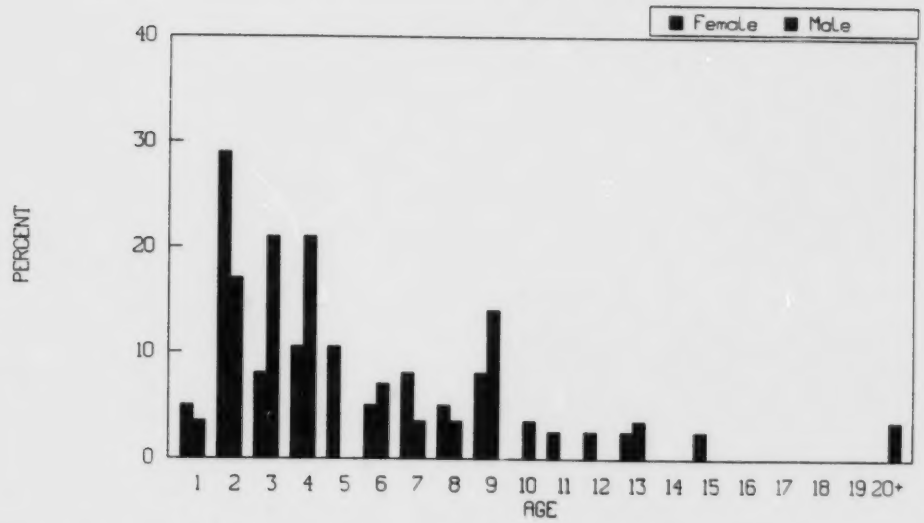


Figure 24. 1988 sex/age breakdown for black bears in northeastern Saskatchewan (primarily outfitter samples).

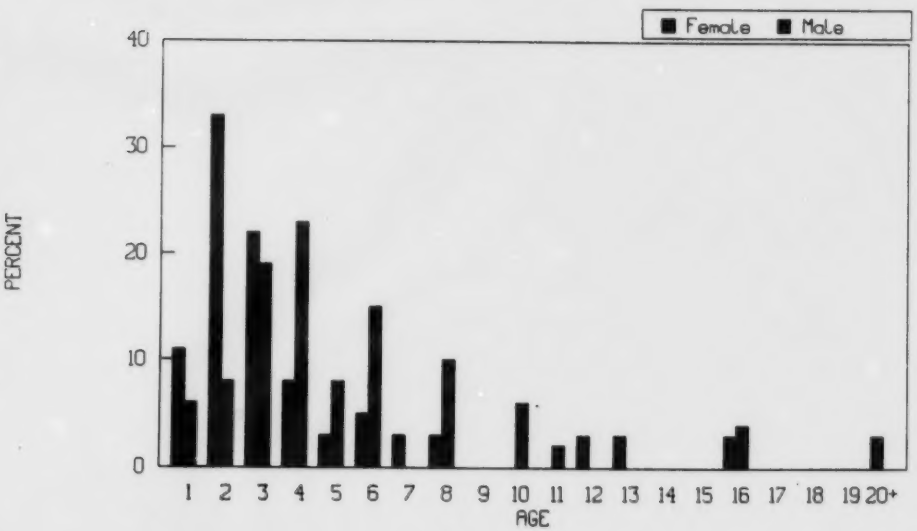


Figure 25. 1988 sex/age breakdown for black bears in northwestern Saskatchewan (primarily outfitter samples).

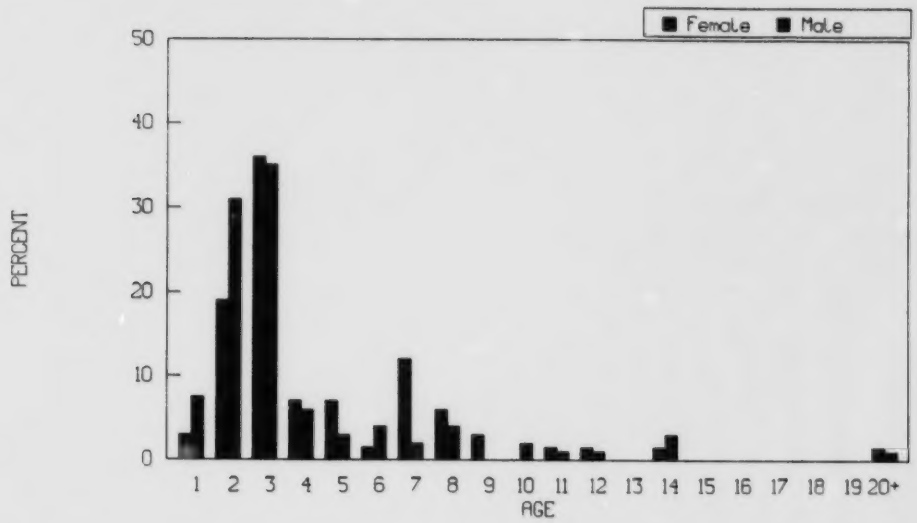


Figure 26. **1989 sex/age breakdown for black bears in northeastern Saskatchewan (primarily outfitter samples).**

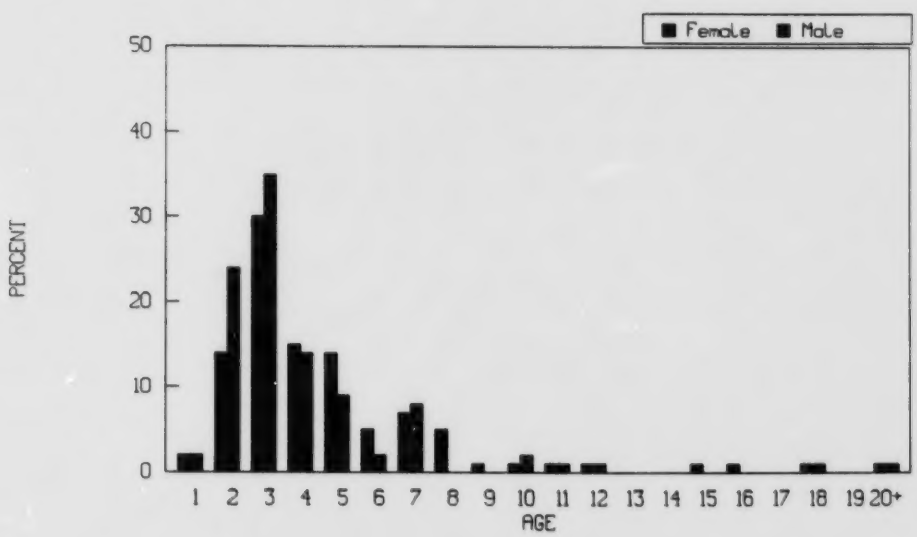


Figure 27. **1989 sex/age breakdown for black bears in northwestern Saskatchewan (primarily outfitter samples).**

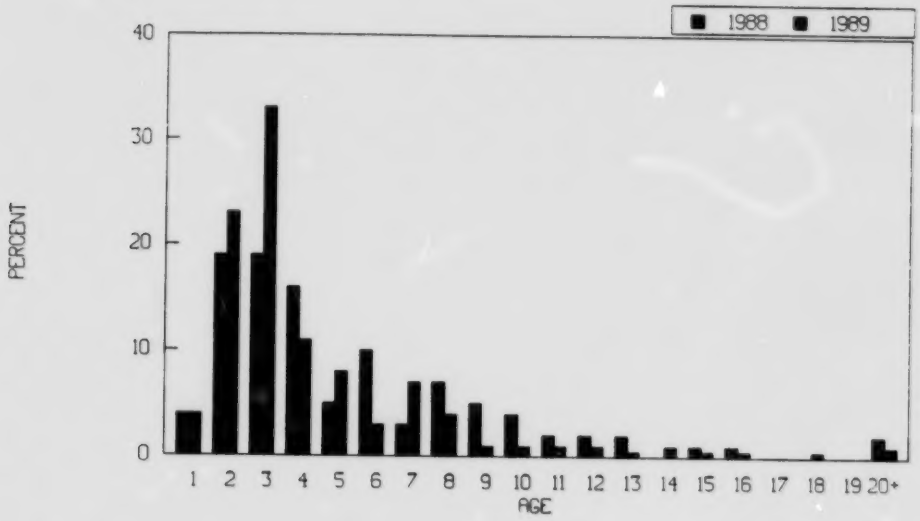


Figure 28. Age frequency distribution of sport harvested bears in Saskatchewan for 1988 and 1989 (data primarily from outfitter returns).

- In northwestern Saskatchewan, the ratio of off-colour to black phase bears in the harvest appears to be declining (0.35:1 in 1986, 0.28:1 in 1987, and 0.24:1 in 1988) although variations between years were not significantly ($P \leq 0.05$) different. A rebound to 0.34:1 was noted in 1989. This return to 1986 levels could be the result of a stabilizing trend in the population or an artifact of expanding outfitting operations which are masking trends in the traditionally hunted areas.

5. Female Representation in Harvest

- Hunters select for large bears. Initially this affords some protection to females which tend to be smaller than boars.
- In northwestern Saskatchewan the 1989 female to male ratio of 0.98:1 is well above the previously reported levels (0.30:1 to 0.72:1) for outfitter reports. Initial samples from outfitters in the northeast show a value of 0.63:1. Both of these values are above those reported by Saskatchewan resident hunters over this same period (range 0.31 to 0.46 females per male).

6. Cub Representation in Harvest

- An accepted indicator for an over exploited bear population is an increase in the representation of cubs in the harvest. Data from Saskatchewan resident hunters indicates this is occurring. The reported ratios of males to females to cubs has been showing a general increase in the cub ratio to values as high as 0.37 per sow in 1989 (Figure 29). Cubs are likely a combination of late fall cubs and early spring yearlings.

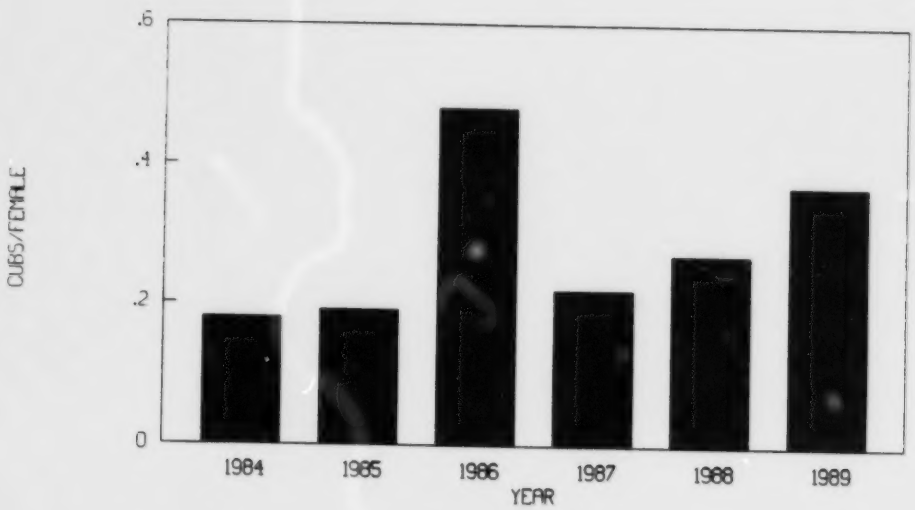


Figure 29. Cub to female ratio in the Saskatchewan black bear harvest as indicated by resident hunter questionnaires.

7. Male Age in Harvest (excludes cubs)

- Male ages in the annual harvest have varied in northwestern Saskatchewan. In 1989 mean ages of boars decreased to 4.10 years (±3.12). Values for 1986, 1987 and 1988 were 5.32 years (±4.74) and 4.98 years (±4.95), and 5.61 years (±2.93), respectively.
- In northeastern Saskatchewan the mean boar age was 3.83 years (s=±3.37; n=105) for 1989.
- Average age for the provincial sample was 3.95 years (±3.25) in 1989.

8. Female Age in Harvest (excludes cubs)

- Unlike boars, northwestern female ages rebounded somewhat in 1989. The 1989 value was 4.91 years (±3.62) as compared to the mean 1988 value of 4.40 years (±4.34), 5.59 years (±4.04) in 1987, and 6.09 years (±3.46) in 1986. This rebound is following one year after the male rebound noted in 1988, and is also probably attributed to expanded outfitting areas.
- In northeastern Saskatchewan average female age was 4.70 years (s=3.83; n=69) in 1989.
- The average age for the provincial sample was 4.81 years (±3.70) in 1989.
- This data, combined with the developed reproductive potential data, indicates that low recruitment rates can be expected in the Saskatchewan bear population.

D. 1990 MANAGEMENT OBJECTIVES

1. No Protection in Agricultural Saskatchewan

- In agricultural Saskatchewan, WMZ 1-36, 38-41 and 44-46, bears may be hunted at any time of year without a licence in order to reduce depredation problems in bee yards and dangerous bear-human interactions. As of the fall of 1990, WMZ 47 will require a valid licence to hunt black bear.

2. Elimination of the Second Bear Licences

- Population monitoring through biological collections and field reports will continue to determine if further action was warranted.
- The need to attain a balance between supply and demand based upon the long-term sustainability of the black bear population dictates that neither the free nor the second licence be reinstated.

3. Harvest Monitoring

- As mentioned in 1989, harvest data was collected separately for resident and non-resident hunters. An apparent underestimate of the harvest was subsequently identified. Harvest monitoring should be performed in a two step system involving the summing of a proportionally developed estimate based on resident hunter questionnaires and required reporting of non-resident hunters from big game outfitters. A more accurate determination of harvest totals can then be made.

4. Harvest Reduction

- Data presented above indicate a need to further reduce the black bear harvest. The position taken is that for 1990 the fall season should be **reduced to two weeks and may be eliminated in 1991.** If closed, the fall season should not be reinstated until such time as the bear population has fully recovered. However, owing to outfitters' commitments to clients and the financial losses to these businesses, **the 1990 fall bear season will be similar to previous years.**
- The selection of the fall season over the spring season for reduction and possible elimination is based on: 1) the desire to take a conservative approach. The harvest by both resident and non-resident hunters is smaller in the fall; and 2) the harvest of females (the primary unit of concern) and cubs, based on resident hunter data, is proportionally higher in the fall (Table 77). A fall closure would, therefore, afford a desirable disproportionate level of protection to the reproductive segment of the population.[2]

Table 77. Spring versus fall values for age/sex composition of the resident sport harvest of black bears in the forest wildlife management zones in Saskatchewan, 1985-89.

Year and Season		Per cent of Total Harvest	Weighted Values For Zones[a] (M:F:Cubs)	Ratio	Weighted Values (M:F:Cubs)	Ratio
1989	Spring	68	2.35:74:20	3.18:1:0.27	235:94	2.50:1
	Fall		88:54:25	1.63:1:0.46	88:79	1.11:1
1988	Spring	71	391:126:25	3.10:1:0.20	391:151	2.59:1
	Fall		126:70:15	1.80:1:021	126:85	1.48:1
1987	Spring	79	450:209:30	2.15:1:0.14	450:239	1.88:1
	Fall		165:62:18	2.66:1:0.29	165:80	2.06:1
1986	Spring	76	633:211:25	3.00:1:0.12	633:236	2.68:1
	Fall		277:138:91	2.01:1:0.66	277:229	1.21:1
1985	Spring	73	286:91:20	3.14:1:0.22	286:111	2.58:1
	Fall		107:70:20	1.53:1:0.29	107:90	1.91:1
Totals		73	1,995:711:120	2.81:1:0.17	1,995:831	2.40:1[b]
			763:394:169	1.94:1:0.43	763:563	1.35:1[b]

[a]Only WMZ with both spring and fall values are included.
[b]Level of significance by chi-squared was $P < 0.001$.

[2]Forest zones were used in the female harvest analysis as they represent the zones responsible for approximately 75 per cent of the total bear harvest. They also are the zones wherein most of the non-resident hunting is occurring.

5. Biological Data

- The recreational and economic significance of the black bear as a big game species has become an important aspect of wildlife management in Saskatchewan. Collection of bear sex/age harvest and reproduction data will be intensified to permit a higher degree of precision in estimating the current population status. Harvest data will be collected not only from Saskatchewan resident hunters but also from non-resident hunters through required reporting from the licensed bear hunting outfitters of the province. Reproductive tracts will be collected on a voluntary basis. An improved understanding of age specific reproductive potential will become necessary to develop a sound management plan for this species.

E. 1990 BLACK BEAR SEASONS

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Spring Bear	Zones 37, 42, 43 and 48 to 69 including Fort a la Corne Wildlife Management Unit, Nipawin Provincial Park and the Bronson Recreation Site	Apr. 9 - June 9	one bear, either sex	• In zones 1 to 36, 38 to 41, and 44 to 47, bears may be hunted at any time of year without licence subject to Wildlife regulations. • In spring, 1991 a licence will be required for zone 47. • Non-residents of Canada must at all times use the services of a licensed guide or outfitter to hunt bear.
	Zones 70 to 76	Apr. 23 - June 23	one bear, either sex	
	Duck Mountain, Greenwater Lake and Meadow Lake Provincial Parks	Apr. 9 - May 26	one bear, either sex	
	Lac la Ronge and Clearwater River Provincial Parks	Apr. 23 - May 26	one bear, either sex	
Fall Bear	Zones 37, 42, 43 and 47 to 76, including Cookson and Leaf Lake Wildlife Management Units	Aug. 27 - Oct. 13	one bear, either sex	• Unused spring bear licences are valid in the fall season. • Licence required for Zone 47. • Non-residents of Canada must at all times use the services of a licensed guide or outfitter to hunt bear.
	Clearwater River, Lac La Ronge, Meadow Lake, Nipawin and Duck Mountain Provincial Parks; Bronson Forest Recreation Site	Sept. 5 - Oct. 13	one bear, either sex	
	Fort a la Corne Wildlife Management Unit only	Sept. 24 - Oct. 13	one bear, either sex	

BARREN-GROUND CARIBOU

A. REVIEW OF 1989 HUNTING SEASONS

- As in past years, only residents of WMZ 76 were allowed to hunt barren-ground caribou. Sport hunters were permitted a two either-sex caribou bag limit with the purchase of two separate licences during a hunting season from November 20, 1988 to the end of March, 1990.
- The special Subsistence Use Hunting Licence for traditional caribou hunting residents of WMZ 76 was unused again in 1989-90. Reasons for this include: (1) few caribou in Saskatchewan close enough for eligible applicants to hunt, and (2) a dramatic decline in the number of eligible applicants because of a reinstatement of treaty rights.
- In 1989-90, 17 first sport licences and 12 second sport licences were sold (Table 1) from which 13 caribou were harvested. Similar to last year, recreational hunting was only practical in the Northwest Territories, and so done under the auspices of N.W.T. Border A licences.

B. POPULATION STATUS

- The most recent population estimate on the Beverly herd (290,000) comes from an aerial survey conducted in 1988. This represents an apparent decline from previous years.

- Caribou from the Beverly herd, and perhaps the Kaminuriak herd, wintered in the northeast corner of Saskatchewan, the closest bands located 100 km north of Wollaston Lake. They were in small numbers and mainly bulls.

C. 1990 MANAGEMENT OBJECTIVES

- The Caribou Management Board continues to co-ordinate management of the Beverly and Kaminuriak herds. Details of several strategies involving Saskatchewan hunters can be found in the published management plan.
- The harvest study will continue during the 1990-91 season.
- Saskatchewan continues to participate in and provide financial support for Caribou Management Board meetings, community meetings, the caribou schools program, the Caribou News newsletter, and a caribou radio show.

D. 1990 SEASON PROPOSAL

Species	Wildlife Management Zone Open	Season Dates (Inclusive)	Limit	Additional Information
Barren-ground Caribou (Sask. Residents of Zone 76 Only)	Zone 76	Nov. 19, 1990 to March 30, 1991	two barren-ground caribou either sex; separate licences required	• "Residents of Zone 76" means a Saskatchewan resident who has lived in Zone 76 for three months immediately preceding the date of licence purchase.

WOODLAND CARIBOU

A. REVIEW OF 1989 HUNTING SEASONS

- The woodland caribou season was closed province-wide in 1987, in response to the apparent absence of caribou from large parts of their southern range.
- Fewer than 200 licences had been sold annually when a season was in place in recent years. This fact and a low harvest suggest that woodland caribou are not a popular species to hunt. Reasons might include:

  1) scarcity of animals
  2) remoteness to hunter access, and
  3) a reputation for being difficult to hunt.

B. POPULATION STATUS

- No caribou were found during an aerial survey of the Sled Lake survey block in January, 1990. A set of three tracks were observed along the Cowan River on the southern edge of the survey block, however, positive identification as to whether or not they belonged to caribou was inconclusive.

C. 1990 MANAGEMENT OBJECTIVES

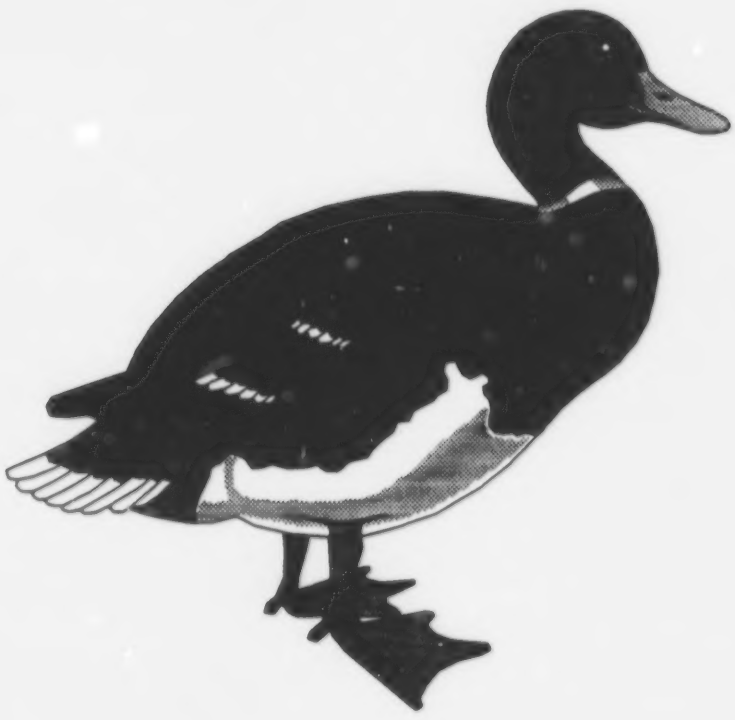
- The future of woodland caribou hunting in Saskatchewan will be reassessed upon completion of caribou habitat inventory and examination of factors influencing population decline.
- Two studies about to begin will contribute greatly to the process:

  - a forestry/wildlife study near Prince Albert using woodland caribou as one of several key indicator species of habitat degradation, and
  - a woodland caribou research project designed to look at the main factors influencing the population in Saskatchewan.

D. 1990 WOODLAND CARIBOU SEASON

- There will be no woodland caribou season in Saskatchewan, in 1990.

GAME BIRDS



GENERAL INFORMATION

Hunting Regulations

The 1989 game bird hunting seasons and bag limits are outlined in Appendix 7. Season dates and bag limits from the recent past are presented in Appendix 9 (a-f). Appendix 11 illustrates the 37 former game management zones established in 1975 and used until 1983. Appendix 12 illustrates the 76 Wildlife Management Zones (WMZ) used since 1984.

Data Collection Techniques

Licence Sales

Licence sales are tabulated by the Revenue Section, Management Services Branch of the Department of Natural Resources using licence returns from vendors and department offices.

A total of 28,887 Saskatchewan game bird hunting licences were sold to provincial residents in 1989, down 10 per cent from 1988 and 41 per cent below the 20 year average of 49,267 (Table 1). Poor duck hunting opportunity is believed to be responsible for the depressed sales. Licence sales to Canadians residents (1,568) were down by 5 per cent and non-residents of Canada (3,216) increased slightly (5%). From 1983-89, Saskatchewan residents did not require a separate licence to hunt cock pheasants. Total sales of 33,671 represents the fewest licences sold in Saskatchewan since 1969.

Saskatchewan Game Bird Hunter Questionnaire Survey

Twenty thousand (20,000) of the 32,000 resident game bird hunters from 1988 were randomly selected to receive the 1989 Hunter Survey, using 1988 licence stubs (Appendix 12). The total usable response by the March 3, 1990 cut off date for receipt of resident returns was only 16 per cent. The return rate for the 1988 survey was 23 per cent. **Since 1981, hunter survey returns have consistently declined.**

In addition, 1,500 Canadian resident bird hunters and 1,500 non-resident of Canada hunters (primarily Americans) were sampled. Total usable responses and expansion factors used in computer analysis were as follows:

	Total Usable Responses			Expansion Factors		
	1989	1988	1987	1989	1988	1987
Saskatchewan Residents	2,855	4,602	5,316	10.12	6.94	6.22
Canadian Residents	3	268	246	N/U	6.30	7.60
Non-Residents	383	337	596	8.40	9.75	6.19

Table 78. Saskatchewan game bird licence sales and migratory game bird permit sales, 1969-89.

Year	Game Bird Licence Sales (%)			Total	Federal Migratory Game Bird Permit Sales[a]
	Saskatchewan Resident (%)	Canadian Resident (%)	Non-Resident (%)		
1988	32,077 (87.27)	1,648 (4.48)	3,031 (8.25)	36,756	23,258
1987	35,190 (85.59)	2,029 (4.94)	3,895 (9.47)	41,114	29,930
1986	41,317 (87.53)	2,158 (4.57)	3,731 (7.90)	47,206	37,692
1985	38,243 (87.07)	2,181 (4.97)	3,497 (7.96)	43,921	36,445
1984	40,102 (88.13)	2,125 (4.67)	3,277 (7.20)	45,504	37,720
1983	47,157 (87.53)	2,978 (5.53)	3,741 (6.94)	53,876	45,383
1982	50,179 (86.62)	3,719 (6.42)	4,034 (6.96)	57,932	47,236
1981	49,034 (86.56)	3,813 (6.73)	3,801 (6.71)	56,648	42,856
1980	59,151 (88.45)	3,929 (5.88)	3,793 (5.67)	66,873	54,081
1979	59,044 (87.63)	3,907 (5.80)	4,429 (6.57)	67,380	56,174
1978	60,901 (87.79)	3,827 (5.52)	4,645 (6.70)	69,373	57,958
1977	62,205 (88.00)	3,901 (5.52)	4,583 (6.48)	70,689	60,029
1976	62,288 (86.53)	4,746 (6.59)	5,030 (6.98)	72,064	61,669
1975	57,275 (87.26)	4,312 (6.57)	4,048 (6.17)	65,635	57,723
1974	52,591 (87.36)	3,821 (6.35)	3,790 (6.30)	60,202	51,504
1973	50,586 (88.60)	2,898 (5.08)	3,609 (6.32)	57,093	51,307
1972	47,217 (81.46)	5,605 (9.67)	5,140 (8.87)	57,962	50,004
1971	45,398 (81.11)	5,076 (9.07)	5,496 (9.82)	55,970	49,448
1970	48,685 (84.32)	4,866 (8.43)	4,190 (7.26)	57,741	47,722
1969	46,709 (85.98)	3,410 (6.28)	4,204 (7.74)	54,323	45,347
1969-88 average	49,267	3,547	4,098	56,913	47,174
1989	28,887 (85.79)	1,568 (4.65)	3,216 (9.56)	33,671	22,916
% Change					
1989 from 1988	-10%	-5%	+6%	-8%	-1%
1989 from average	-41%	-56%	-22%	-41%	-51%

[a]Permits sold in Saskatchewan.

The returned questionnaires were edited by Wildlife Branch and keypunched by Management Services Branch. Westbridge Computer Corporation, conducted the computer analysis. Computer printouts were available May 18, 1990 and were used extensively to write this report. Projected hunter participation (active hunters) and recreation days per species is depicted in Figures 30 and 31.

Wing Collection

A total of 735 wings was collected from hunter-bagged upland game birds in the fall of 1989 to derive population age-structures, from which reproductive success can be inferred. The 1989 sample decreased by 50 per cent from the 1,467 wings collected in 1988. Conservation officers collected wings from hunters encountered in the field and enlisted the assistance of wildlife organizations to obtain samples. Wildlife Branch staff collected wings on an incidental basis.

Population Surveys

Upland game bird populations were surveyed between April 2 and May 11, 1990 by Wildlife Branch staff and conservation officers. Data was compiled and analyzed by the Wildlife Branch.

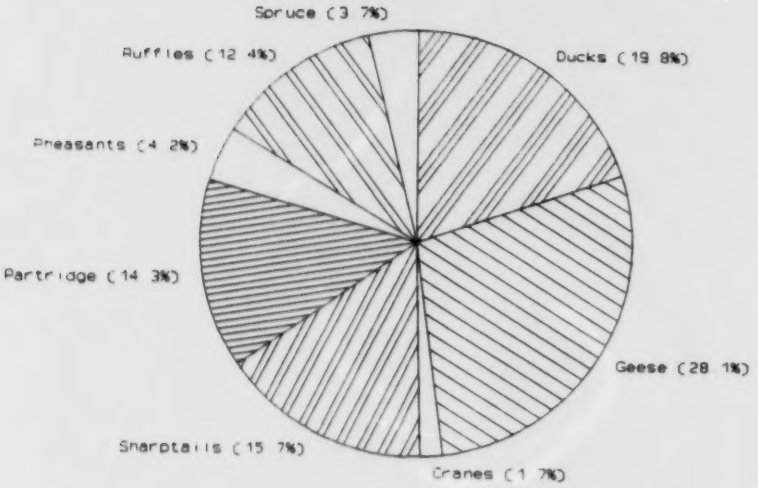


Figure 30. Active hunters by species in the 1989 game bird hunting season.

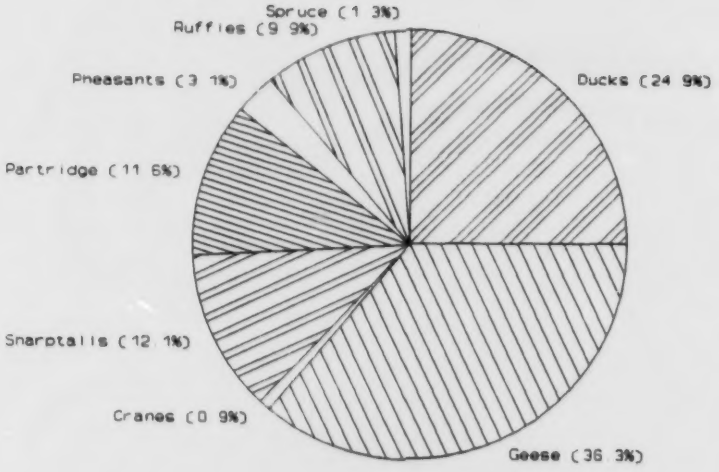


Figure 31. Recreation days created by species in the 1989 game bird hunting season.

MIGRATORY BIRDS

A. INTRODUCTION

- The Canadian Wildlife Service (CWS) is primarily responsible for management of migratory birds, although in Saskatchewan they are managed in consultation with the provincial authority. CWS collects most of the prerequisite data. Their migratory game bird hunter survey is complemented by the Saskatchewan Game Bird Hunter Survey (Appendix 13).
- From 1979 to 1984, stabilized duck regulations were in effect. With a daily bag limit of eight birds, those regulations were considered liberal. The six-year framework of stabilized duck regulations ended in 1985 when bag limits were reduced to four birds per day. Bag limits were relaxed in 1986 and 1987, providing for six ducks per day of which only four could be mallards. Additionally, the duck season in southern Saskatchewan was delayed to September 15. These measures were taken to effect a 25 per cent reduction in mallard harvest from that expected under stabilized regulations. This reduction has been achieved each year.
- In 1988 and 1989, duck regulations were further restricted to five birds daily of which only three could be mallards. This resulted in a 57 and 52 per cent reduction in the harvest rate of mallards from that expected under stabilized regulations. Further restrictions in 1989 included a one bird daily limit for pintails and canvasbacks.
- Goose hunting regulations have remained stable except for calendar adjustments.

B. REVIEW OF 1989 HUNTING SEASON

- The number of Migratory Game Bird permits sold in the province has declined in recent years. There were 22,916 federal Migratory Game Bird permits sold in 1989 compared to 23,258 in 1988, a decrease of 1 per cent (Table 1).

C. OTHER WATERFOWL REGULATIONS

- Five hundred meter restrictions on major waterfowl staging areas are set by the province. There were no changes to existing 500 meter restrictions in 1990. The Canada goose hunting restriction in WMZ 34 (Broadview area) and waterfowl hunting in the Elbow Wildlife Management Unit (EWMU) were eliminated. The Broadview Canada goose flock is now well established and no longer requires protection, and waterfowl were not normally hunted in the EWMU.

Game Bird Hunting Closed

The following areas are closed to hunting:

Cypress Lake and the islands thereon, 10 miles north of Consul;
Horsehide Lake and the islands thereon, 8 miles south of Mistatim;
Tobin Lake and the islands thereon;
Witchekan Lake, north of Spiritwood.

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge between September 11, 1989, and November 4, 1989, both dates inclusive:

Boulder Lake, 10 miles southeast of Watrous;
Ibsen Lake, 4 miles west of Yellow Grass;
The islands in the North Saskatchewan River between the Paynton Ferry and the Alberta border.

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge between September 18, 1989 and November 4, 1989, both dates inclusive:

Barber Lake, 3 miles north of Wiseton;
Cactus Lake, 12 miles southeast of Macklin;
Castlewood Lake, 3 miles northwest of Biggar;
Cutbank Lake, 3 miles northeast of Glidden.

The following water areas are closed to game bird hunting in, on, or within 500 metres of the water's edge until November 6, 1989:

Antelope Lake, 8 miles north of Gull Lake;
Avonlea Reservoir, 3 miles southeast of Avonlea;
Bigstick Lake, 10 miles east of Golden Prairie;
Birch Lake, 10 miles northeast of Glaslyn;
Buffalo Coulee Lake, 8 miles northwest of Coleville;
Cabri Lake, 10 miles south of Mantario;
Deep Lake, 5 miles south of Indian Head;
Dewar Lake, near town of Dewar Lake;
Ear Lake, 6 miles east of Reward;
Eyre Lake, 7 miles west of Mantario;
Flat Lake, 3 miles southeast of Wilkie;
Goose Lake, 7 miles east of Harris;
Gooseberry Lake, 13 miles northeast of Fillmore;
Grassy Lake, 7 miles northeast of Luseland;
Highfield Reservoir, 18 miles east of Swift Current;
Handsome Lake, 6 miles north of Rush Lake;
Junction Dam, 2 miles north of Maple Creek;
Kiyiu Lake, 6 miles north of Netherhill;
Lac la Course, 6 miles southeast of Pelly;
Leech Lake, 8 miles south of Yorkton;
Lomond Lake, 3 miles northwest of Preeceville;
Luck Lake, 4 miles west of Birsay;
Mallard Bay, 8 miles north of Mortlach;
Mud Lake, 10 miles north of Wynyard;
Muddy Lake, 7 miles south of Unity;
Opuntia Lake, 4 miles east of Plenty;
Paysen Lake, 19 miles north of Chaplin;
Saline Lake, 2 miles southwest of Invermay;
Silver Lake, 7 miles north of Sheho;
Snipe Lake, 7 miles northwest of Eston;
Stonewall Lake, 2 miles south of Invermay;
Teo Lake, 8 miles west of Kindersley;
Thackeray Lake, 2 miles east of Thackeray;
Thomson Lake, 3 miles northwest of Lafleche;
Waterhen Marsh, 4 miles south of Kinistino.

- That portion of the Waterhen River, 3 miles west and 2 miles east from the Highway No. 4 crossing (5 miles north of Dorintosh, WMZ 69).
- That portion of the South Saskatchewan River lying between Gardiner Dam and the north boundary of Township 30, Range 8, West of the Third Meridian.
- That portion of the South Saskatchewan River and Lake Diefenbaker lying between the Alberta border and Saskatchewan Landing Bridge.
- That portion of the North Saskatchewan River lying between the Paynton Ferry and the Borden Bridge.

DUCKS

A. REVIEW OF 1989 HUNTING SEASON

- The estimated retrieved kill of ducks in Saskatchewan during 1989 was 104,132 birds, a 1 per cent decrease from the 104,777 taken in 1988, and 72 per cent below the 1979-84 average (Table 79, Figure 32). Mallard harvest increased by 2 per cent from 73,519 in 1988 to 74,782 in 1989 (Table 80, Figure 33). The majority of the mallard harvest occurred during the first three weeks of October. In 1989, pintails and canvasbacks were restricted to one bird daily which resulted in a decrease in harvest of 15 and 88 per cent, respectively for these two species (Table 81).

Table 79. Estimated retrieved kill of ducks in Saskatchewan, 1979-89 by WMZ (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa).

Year	WMZ 1	WMZ 2	WMZ 3	Total*
1979	173,336	154,397	254,960	582,693
1980	144,446	129,774	169,331	443,551
1981	82,305	70,474	120,472	273,251
1982	95,104	84,602	144,144	324,147
1983	125,434	75,343	180,967	381,744
1984	90,266	72,159	105,243	257,668
1985	79,411	49,232	82,275	210,918
1986	81,291	58,489	86,698	226,478
1987	64,830	59,237	77,452	201,519
1988	30,321	41,785	32,670	104,777
1989	36,743	35,748	31,641	104,132
1979-84 average	116,865	97,792	162,520	377,176
1985-88 average	63,963	52,186	69,754	185,903
% Change				
1989 from 1988	+21%	-14%	-3%	-1%
1989 from 1979-84 average	-69%	-63%	-81%	-72%
1989 from 1985-88 average	-43%	-31%	-55%	-44%

*Total includes WMZ 1, 2 and 3.

B. POPULATION STATUS

- Most of the Grassland and Aspen Parkland regions of Alberta, Saskatchewan and Manitoba received below normal precipitation during the summer of 1989. The fall was generally warm and dry across the southern prairie resulting in low soil moisture levels at freeze-up. Snow pack conditions in 1989-90 varied across the province with areas south of a line extending from North Battleford to Moosomin receiving below normal precipitation while areas north of the line received normal to above normal moisture. Mild temperatures in January and February depleted much of the snow pack in the southern half of the province.

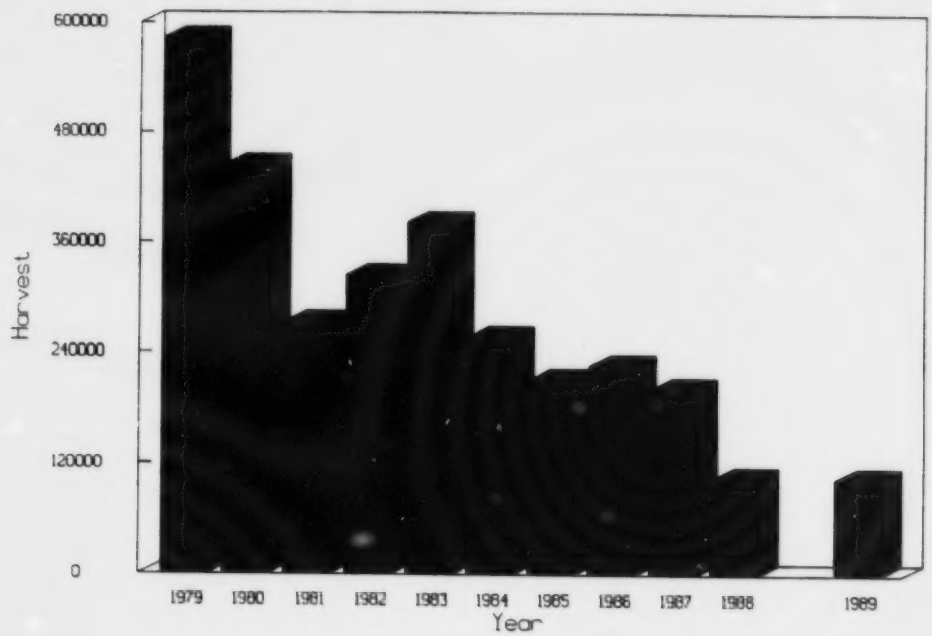


Figure 32. Saskatchewan duck harvest, 1979-89 (after CWS).

Table 80. Estimated retrieved kill of mallards in Saskatchewan, 1979-89 (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa).

Year	WMZ 1	WMZ 2	WMZ 3	Total*
1979	117,330	119,394	185,940	422,664
1980	116,997	107,808	129,841	354,646
1981	68,721	55,082	106,391	230,194
1982	71,046	64,080	106,006	241,132
1983	99,291	48,263	138,238	285,792
1984	58,099	46,116	77,467	181,682
1979-84 average	88,581	73,457	123,981	286,018
1985	54,464	37,728	66,236	158,428
1986	51,222	40,652	59,233	151,107
1987	53,011	46,739	59,288	159,038
1988	20,023	27,813	25,683	73,519
1985-88 average	44,680	38,233	52,610	135,523
1989	24,027	23,812	26,943	74,782
% Change				
1989 from 1988	+20%	-14%	+5%	+2%
1989 from 1979-84 average	-73%	-68%	-78%	-74%
1989 from 1985-88 average	-46%	-38%	-49%	-45%

*Total includes WMZ 1, 2 and 3.

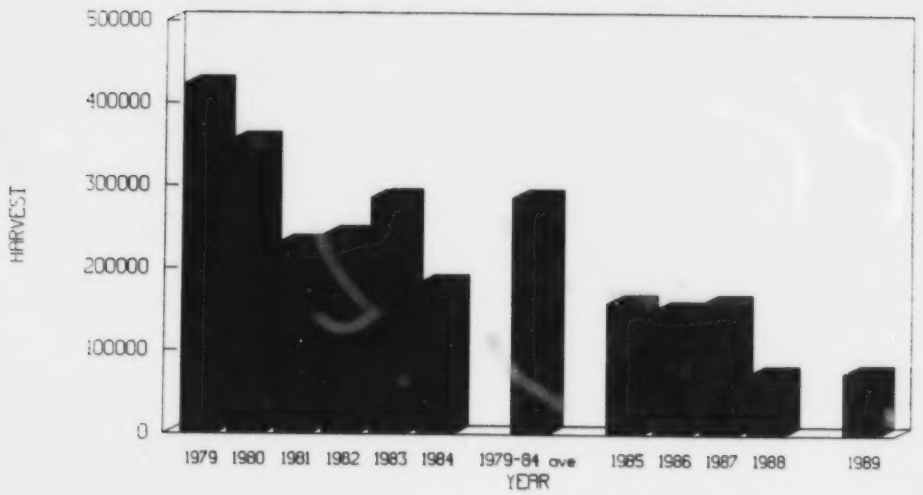


Figure 33. Saskatchewan mallard harvest, 1979-89 (after CWS).

Table 81. Estimated retrieved kill of pintails and canvasbacks in Saskatchewan, 1979-89 (after CWS Progress Notes and interim data via L. Metras, CWS, Ottawa).

Year	Pintail	Canvasback
1979	29,583	7,593
1980	17,945	1,292
1981	2,287	872
1982	12,687	3,314
1983	16,781	2,703
1984	13,038	5,250
1985	7,654	4,051
1986	9,047	5,145
1987	8,777	563
1988	5,994	2,109
10 year average	12,379	3,289
1989	5,080	248
% Change		
1989 from 1988	-15%	-88%
1989 from 10 year average	-59%	-92%

- Water conditions generally improved this spring, but runoff volumes were still well below normal in most southern and west central areas of the grainbelt. Runoff was above normal in the east central area of agricultural Saskatchewan. Precipitation in the province from April 1 to July 29, 1990 ranged from 75 per cent of normal in the northwest to 150 per cent above normal in the southeast (Figure 34).

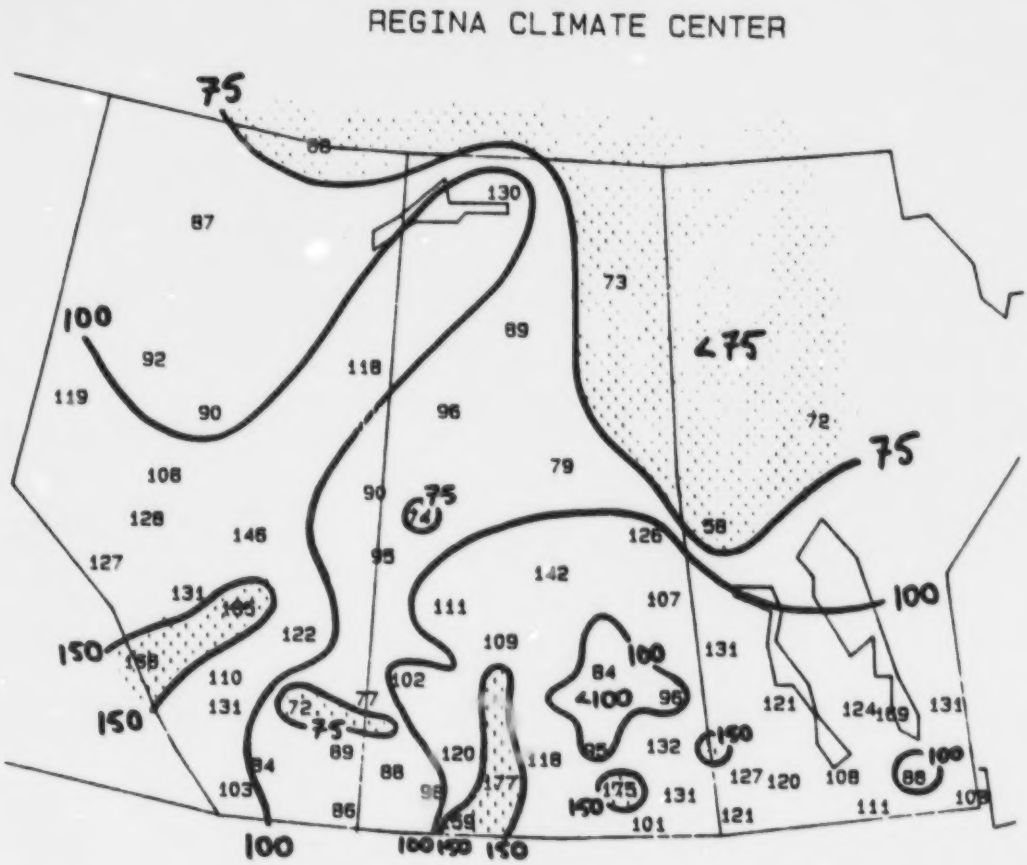


Figure 34. Per cent of normal precipitation (mm) in prairie Canada, April 1 to July 29, 1990.

- Palmer Drought Index (PDI) values for July 1990 are given in Figure 35. With exception of a band through central Saskatchewan, below normal moisture values (minus numbers) are distributed across the southern portion of the province. PDI values for the province range from -3.05 (extreme drought) in the southeast to +4.55 (very wet) in the extreme northwest. An index of "0" represents normal moisture conditions.

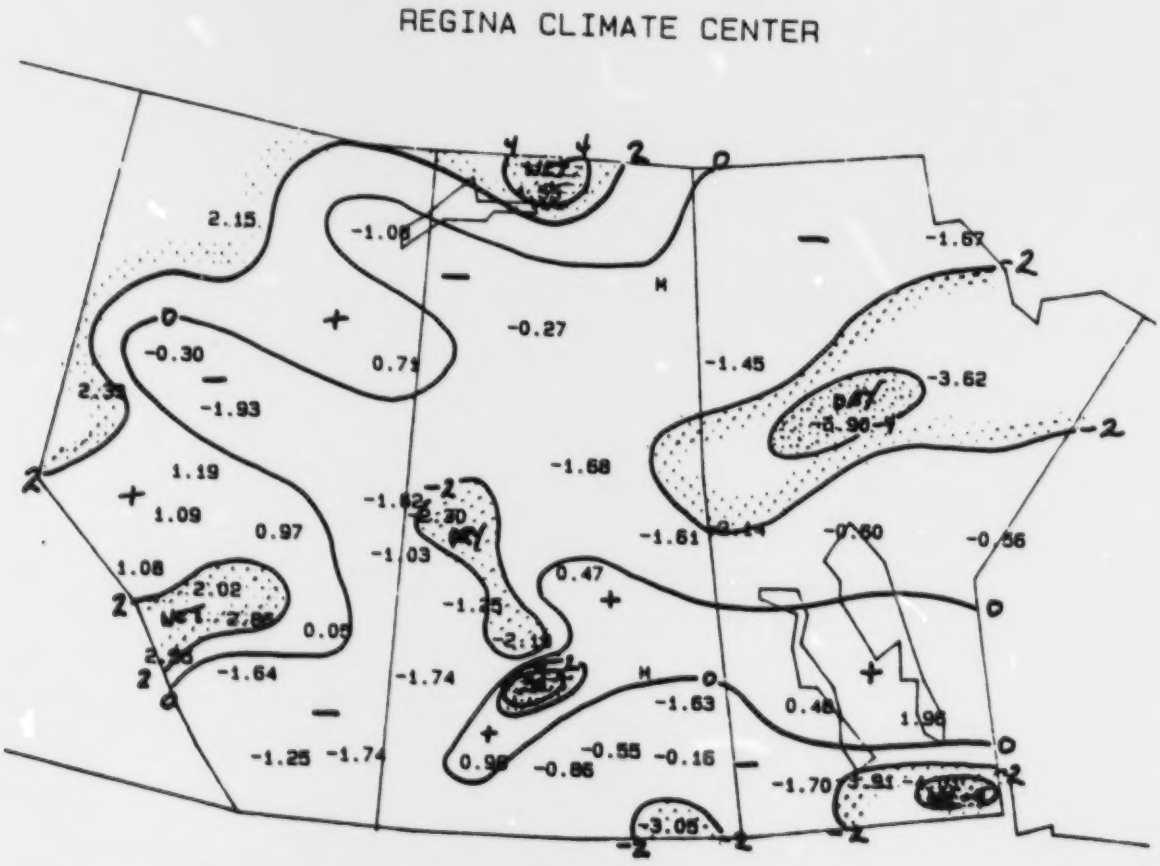


Figure 35. Palmer Drought Index values for prairie Canada, July, 1990.

- May ponds in southern Saskatchewan, as determined by the CWS/USFWS spring breeding population survey, were up 60 per cent from 1989 but remain 32 per cent below the long-term mean. With exception of the extreme southwestern part of the province, all other areas of southern Saskatchewan showed increases in May pond numbers over 1989 (Table 82).
- The total duck breeding population in southern Saskatchewan was 5.1 million, up 30 per cent from the 3.9 million estimated in 1989. Dabblers were up 42 per cent and divers were down 23 per cent from 1989 and remain 6 and 47 per cent, respectively, below the 10-year mean. Mallards increased by 32 per cent and pintails decreased by 3 per cent, but remain 15 and 45 per cent below the 10-year mean, respectively (Table 83).
- July ponds (538,500) in southern Saskatchewan increased by 17 per cent from the 459,000 recorded in 1989, but remain 22 per cent below the 10-year mean and 35 per cent below the long-term (1955-89) average. Loss of ponds between May and July was 61 per cent which is considered normal under average moisture conditions (Table 84, Figure 34).
- The 1990 duck brood index (68,300) for southern Saskatchewan increased by 17 per cent from 1989 (58,400), but remains 19 and 49 per cent below the 10-year mean and the long-term (1955-89) average. The late nesting index (all duck species), which is intended to be an estimate of broods expected to hatch after the July survey, was up 37 per cent from 1989 and remains 49 and 74 per cent below the 10-year and long-term (1955-89) averages, respectively (Table 85).

Table 82. Long-term trend in May pond estimates by stratum in southern Saskatchewan, comparing 1990 with 1989, the 1980-89 previous 10-year mean, and the 1961-89 long-term mean (estimates in thousands).*

Year	Stratum 30	31	32	33	34	35	Total
1961	142.2	219.4	252.2	80.3	67.5	48.0	809.6
1962	176.8	422.8	343.1	49.8	291.3	64.8	1,348.6
1963	144.7	198.1	268.4	43.2	230.9	125.3	1,010.6
1964	203.3	369.1	333.1	66.8	493.7	403.7	1,869.7
1965	327.9	439.9	610.1	112.2	442.1	337.6	2,269.8
1966	350.8	587.3	595.1	133.0	593.7	404.9	2,666.8
1967	282.3	642.1	688.8	194.9	545.1	299.0	2,652.2
1968	219.5	312.6	383.4	61.8	123.5	58.5	1,159.3
1969	383.2	465.5	774.7	138.7	267.1	179.6	2,208.8
1970	289.6	628.7	763.8	106.8	721.3	518.1	3,028.3
1971	302.5	418.3	509.2	123.8	608.6	391.7	2,354.1
1972	356.5	659.8	364.7	64.5	552.2	306.2	2,303.9
1973	259.3	453.5	317.6	83.3	227.6	117.0	1,458.3
1974	465.6	910.9	822.0	133.8	945.4	462.1	3,739.8
1975	395.3	806.1	785.6	192.7	821.4	401.2	3,402.3
1976	201.9	399.0	553.4	96.8	691.3	671.3	2,613.7
1977	176.1	254.7	265.7	44.5	338.8	170.3	1,250.1
1978	274.1	393.6	566.4	161.6	545.5	280.7	2,221.9
1979	433.4	697.5	660.4	130.2	667.8	480.9	3,070.2
1980	265.4	311.3	358.2	48.1	273 3	137.2	1,393.5
1981	145.9	160.5	126.2	28.4	97.3	52.6	610.9
1982	283.6	629.7	704.5	119.0	267.5	210.6	2,194.7
1983	385.0	715.5	711.9	96.0	466.6	323.3	2,696.3
1984	283.1	548.6	267.0	35.2	250.6	127.0	1,511.3
1985	622.3	737.1	722.9	108.0	560.6	207.8	2,958.5
1986	343.8	402.5	615.2	112.8	529.1	346.3	2,349.7
1987	223.8	260.9	347.5	150.9	251.7	184.4	1,419.2
1988	217.6	378.7	149.2	37.1	213.8	63.4	1,059.9
1989	208.1	220.6	222.9	71.1	66.5	73.7	860.9
1990	211.6	282.9	276.6	56.4	451.0	96.8	1,375.3
10-year mean	297.9	436.5	422.6	80.7	295.3	172.6	1,705.5
Long-term mean	288.4	470.5	485.6	97.4	418.2	256.8	2,016.9
Percent Change:							
1990 from 1989	2	28	24	-21	599	31	60
1990 from the 10-year mean	-29	-35	-35	-30	53	-44	-19
1990 from the Long-term mean	-27	-40	-43	-42	8	-62	-32

* Adjusted for visibility bias.

Table 83. Status of waterfowl breeding population estimates by species and stratum in southern Saskatchewan, comparing 1990 with 1989, the 1980-89 previous 10-year mean, and the 1955-89 long-term mean (estimates in thousands).*

Species	Stratum (1990) 30	31	32	33	34	35	1990 Total	1989 Total	10-year Mean	Long-term Mean	Percent Change from** 1989	10-Year Mean	Long-term Mean
Ducks													
Dabblers													
Mallard	268.9	297.7	329.6	86.8	203.2	65.8	1,252.0	945.7	1,467.1	2,287.2	32.0	- 15.0	- 45.0
Am. Black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	NC	- 100.0	- 100.0
Gadwall	123.0	63.5	193.2	35.0	99.8	22.3	536.8	382.6	492.1	504.2	40.0	9.0	6.0
Am. wigeon	137.0	86.5	202.7	39.9	38.0	5.6	509.3	424.5	519.7	693.9	20.0	- 2.0	- 27.0
Green-winged teal	58.3	149.4	50.7	3.8	195.3	68.2	525.7	215.5	259.6	296.7	144.0	103.0	77.0
Blue-winged teal	146.8	173.8	235.2	50.2	203.5	66.1	875.5	587.6	907.5	1,405.9	49.0	- 4.0	- 38.0
N. shoveler	85.0	105.1	142.9	25.9	78.1	11.8	448.7	250.8	537.6	599.8	79.0	- 17.0	- 25.0
N. Pintail	53.6	44.4	91.8	34.4	95.4	17.2	337.0	348.8	612.4	1,411.9	- 3.0	- 45.0	- 76.0
Subtotal	872.6**	920.3	1,246.2	275.5	913.4	257.0	4,484.9	3,155.5	4,796.3	7,199.9	42.0	- 6.0	- 38.0
Divers													
Redhead	42.2	40.4	16.2	1.0	23.4	2.6	125.9	183.4	231.3	198.0	- 31.0	- 46.0	- 36.0
Canvasback	36.8	46.3	11.3	0.6	27.8	3.2	126.0	106.1	157.9	188.4	19.0	- 20.0	- 30.0
Scaups	106.4	41.4	31.6	4.2	8.7	1.2	193.6	316.7	479.7	449.8	- 39.0	- 60.0	- 57.0
Ring-necked duck	11.5	2.9	1.8	0.0	0.9	1.4	18.5	10.1	38.5	27.9	83.0	- 52.0	- 34.0
Goldeneyes	0.0	6.4	0.0	0.0	0.0	0.0	6.4	22.8	22.1	19.2	- 72.0	- 71.0	- 67.0
Bufflehead	27.5	14.2	1.1	0.7	1.2	2.3	47.1	29.7	38.1	31.9	58.0	23.0	47.0
Ruddy duck	22.0	12.1	11.0	0.8	21.8	0.0	66.9	90.3	132.9	116.5	- 26.0	- 50.0	- 43.0
Subtotal	246.4	163.8	73.0	6.5	83.9	10.7	584.4	759.1	1,100.4	1,023.6	- 23.0	- 47.0	- 43.0
Miscellaneous													
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NC	NC	NC
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NC	NC	NC
Scoters	5.2	0.0	0.0	0.0	0.0	0.0	5.2	2.8	2.7	4.8	86.0	93.0	8.0
Mergansers	2.4	0.6	0.5	0.0	0.9	0.6	5.2	2.3	4.2	2.7	117.0	19.0	85.0
Subtotal	7.6	0.6	0.5	0.0	0.9	0.6	10.2	5.1	6.9	7.5	100.0	48.0	36.0
Total Ducks	1,126.7	1,084.7	1,319.7	282.0	998.2	268.3	5,079.6	3,919.7	5,903.6	8,231.0	30.0	- 14.0	- 38.0
Canada goose	14.4	31.8	8.5	2.8	7.1	2.0	66.5	58.6	34.3	15.2	10.0	88.0	325.0
Am. coot	130.9	106.9	42.9	15.7	55.9	4.5	356.8	362.0	535.7	670.2	- 1.0	- 33.0	- 47.0

*Adjusted for visibility bias
**Subtotals and totals may not agree exactly as additions are made prior rounding to the nearest 100 birds.

Table 84. Long-term trend in July pond indices by stratum in southern Saskatchewan, comparing 1990 with 1989, the 1979-89 previous 10-year mean, the 1955-89 long-term mean, and comparison of May with July ponds in 1989 (estimates in thousands).[a][b]

	Stratum						
Year	30	31	32	33	34	35	Total
1955	138.6	332.1	374.5	120.5	668.5	449.0	2083.2
1956	120.9	186.8	210.1	34.8	346.5	216.2	1115.3
1957	59.0	136.8	127.6	18.9	260.8	77.4	680.5
1958	57.0	82.8	69.1	18.4	127.9	46.1	401.3
1959	40.1	95.9	123.0	31.5	155.6	74.1	520.2
1960	47.3	104.0	136.8	16.9	229.7	102.5	637.2
1961	41.0	35.6	51.1	10.3	32.8	22.4	193.2
1962	29.9	40.0	62.6	12.4	0.0	0.0	144.9
1963	93.0	97.2	227.8	41.6	177.5	89.4	726.5
1964	33.5	82.5	99.2	13.1	141.9	144.3	514.5
1965	112.4	188.7	289.1	88.7	167.5	69.5	915.9
1966	149.0	320.8	239.9	72.9	164.3	105.2	1052.1
1967	86.4	136.5	192.6	44.6	101.1	50.2	611.4
1968	66.3	96.2	88.5	15.9	41.1	20.2	328.2
1969	125.4	151.8	357.0	63.0	86.6	159.2	943.0
1970	278.3	365.8	568.2	70.1	219.3	209.6	1711.3
1971	159.1	277.5	335.9	41.8	171.7	91.6	1077.6
1972	116.5	189.7	154.8	25.2	108.0	107.4	701.6
1973	153.1	442.6	145.3	21.7	103.5	52.4	918.6
1974	262.5	309.9	455.3	57.5	252.5	175.0	1512.7
1975	216.6	299.6	391.1	69.1	282.5	281.9	1540.8
1976	165.1	254.5	414.3	55.2	266.7	211.5	1367.3
1977	101.6	187.4	183.0	19.9	154.1	72.2	718.2
1978	82.1	177.8	240.1	50.4	168.3	135.7	851.4
1979	159.6	230.8	274.2	46.9	169.2	155.8	1036.5
1980	77.3	109.8	90.3	21.9	63.0	32.7	395.0
1981	75.7	87.0	96.3	22.9	52.2	29.6	363.7
1982	130.9	197.1	372.5	122.0	86.0	55.4	963.9
1983	134.8	313.9	237.5	44.1	366.3	99.1	1195.7
1984	126.8	218.8	140.1	21.7	103.4	41.9	652.7
1985	186.2	292.9	173.8	20.9	177.5	55.8	907.1
1986	188.0	218.8	170.0	36.3	171.3	90.0	874.4
1987	126.8	183.3	123.6	27.7	119.1	63.0	639.5
1988	120.4	126.5	94.1	36.6	61.3	23.4	442.3
1989	101.2	108.4	129.6	36.3	51.6	31.9	459.0
1990	101.2	135.0	135.5	21.7	96.3	48.8	538.5 *c
10-year mean	126.8	185.7	162.8	39.0	122.8	52.3	689.3
Long-term mean	118.9	190.9	212.5	41.5	166.4	104.0	834.2
Percent Change							
1990 from 1989	0%	25%	5%	-40%	87%	53%	17%
1990 from 10-year mean	-20%	-27%	-17%	-44%	-22%	-7%	-22%
1990 from long-term mean	-15%	-29%	-36%	-48%	-42%	-53%	-35%
May ponds 1990 (adjusted)	211.6	282.9	278.6	56.4	451.0	96.8	1,375.3
Percent change May to July 1990	-52%	-52%	-51%	-62%	-79%	-50%	-61%

*a July ponds are unadjusted for visibility bias.
*b Incomplete coverage.
*c Totals may not agree exactly, as additions are made prior to rounding to the nearest 100 birds.

- Even though restrictive regulations have been in effect since 1985, duck populations in southern Saskatchewan continue to be in jeopardy, particularly mallards and pintails. Past restrictive harvest strategies have only partially compensated for the current drought and severe degradation of upland nesting habitat.
- Recognizing the current status of the waterfowl resource and its habitats, the poor prognosis for brood production in 1990, and the expectations of the hunting public, the restrictive regulations implemented in 1988 (three mallards daily) and 1989 (one canvasback and one pintail daily) will be continued this fall. Although these restrictive regulations reflect the seriousness of the situation, duck hunters are expected to show restraint and select for drakes whenever possible.

Table 85. Status of waterfowl brood and late-nesting indices by stratum in southern Saskatchewan, comparing 1990 with 1989, the 1980-89 previous 10-year mean, and the 1955-89 long-term mean (index in thousands).*a

Species	Stratum (1990) 30	31	32	33	34	35	1990 Total	1989 Total	10-year Mean	Long-term Mean	Percent Change from*a 1989	10-Year Mean	Long-term Mean
Broods:													
Duck brood index	26.7	15.8	11.0	2.3	9.9	2.6	68.3	58.4	84.6	133.3	17%	-19%	-49%
Average brood size:*b	4.2	3.7	4.2	2.7	6.6	5.4	4.3	4.7	4.8	5.1	-9%	-11%	-16%
Coot brood index	9.2	5.9	0.1	0.3	3.4	0.0	18.9	6.6	23.9	27.8	195%	-21%	-32%
Late nesting index:*c													
Dabblers													
Mallard	2.2	0.9	3.1	0.0	2.5	2.0	10.7	8.9	16.9	28.6	20%	-37%	-63%
Am. Black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NC	NC	NC
Gadwall	1.0	0.3	0.7	0.0	0.6	0.9	3.4	1.8	5.4	9.2	89%	-37%	-63%
Am. wigeon	0.5	0.3	0.1	0.0	0.0	0.0	0.9	0.7	2.0	6.9	29%	-56%	-82%
Green-winged teal	0.0	0.0	0.0	0.0	0.4	0.7	1.2	0.4	1.9	2.7	200%	-38%	-55%
Blue-winged teal*d	0.5	0.6	0.8	0.0	0.6	0.9	3.3	2.2	8.3	12.1	50%	-60%	-73%
N. shoveler	0.2	0.3	0.1	0.0	0.3	0.1	1.1	0.1	1.7	4.0	1000%	-35%	-72%
N. Pintail	0.2	0.0	0.3	0.3	0.0	0.0	0.8	0.4	2.8	7.9	100%	-71%	-90%
Subtotal	4.6	*e 2.3	5.0	0.3	4.5	4.6	21.3	14.5	39.0	69.5	48%	45%	69%
Divers													
Redhead	0.0	0.0	0.4	0.0	0.1	0.1	0.7	0.0	1.4	2.4	**	-51%	-71%
Canvasback	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.7	1.4	**	-85%	-93%
Scaups	0.2	0.0	0.8	0.0	0.3	0.4	1.8	1.4	5.7	7.4	29%	-69%	-76%
Ring-necked duck	0.5	0.3	0.0	0.0	0.1	0.0	0.9	0.0	0.6	0.7	**	58%	28%
Goldeneyes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	NC	-100%	-100%
Bufflehead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	NC	-100%	-100%
Ruddy duck	0.2	0.6	0.1	0.0	0.4	0.0	1.4	1.9	4.7	5.8	-26%	-70%	-76%
Subtotal	1.0	0.9	1.5	0.0	1.0	0.6	5.0	3.3	13.6	18.4	48%	-64%	-73%
Miscellaneous													
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NC	NC	NC
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NC	NC	NC
Scoters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	NC	-100%	-100%
Mergansers	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.9	**	200%	-68%
Subtotal	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.1	1.2	**	90%	-75%
Unidentified	5.3	3.2	5.2	0.3	0.0	0.0	14.0	11.9	26.9	66.4	18%	-48%	-79%
Total ducks	10.9	6.7	11.7	0.5	5.6	5.2	40.6	29.7	79.8	155.4	37%	-49%	-74%

*a Unadjusted for visibility bias.
*b From complete Class II and III broods observed.
*c As indicated by observed adult pairs and singles.
*d Includes cinnamon teal.
*e Subtotals and totals may not agree exactly, as additions are made prior to rounding to the nearest 100 birds.

C. 1990 MANAGEMENT OBJECTIVES

- With the exception of calendar adjustments, season dates and bag limits remain the same as in 1989.

D. 1990 DUCK SEASONS

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Ducks (All Hunters)	Zones 1 to 42, 44 to 47, and 52, including Valeport Wildlife Management Unit; starting Sept. 19, Last Mountain Lake Wildlife Management Unit	Sept. 17 - Dec. 15	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintails and 2 only may be canvasbacks)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac la Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management	Sept. 1 - Dec. 15	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintails and 2 only may be canvasbacks)

GEESE

A. REVIEW OF 1989 HUNTING SEASON

- The total Saskatchewan goose harvest (all species) increased by 27 per cent from 122,959 in 1988 to 155,958 in 1989, 2 per cent below the 1978-88 average (Table 86, Figure 36). Canada geese (94,853) comprised 61 per cent of the harvest followed by white-fronted (35,581), lesser snow (22,611) and Ross' (2,913) geese each contributing 23, 14 and 2 per cent, respectively of the total harvest. The majority of the goose harvest occurred between the last week of September and the first three weeks in October.

Table 86. Goose harvest in Saskatchewan, 1978-89 (after CWS Progress Notes).

Year	Species				Totals
	Canada	White-fronted	Lesser Snow	Ross'	
1978	73,473	49,690	11,684	3,668	138,515
1979	83,508	49,179	13,145	6,602	152,434
1780	94,257	57,422	16,501	2,985	171,165
1981	87,051	36,556	15,722	1,983	141,312
1982	86,078	39,142	21,990	3,451	150,661
1983	125,504	47,330	33,165	4,136	210,135
1984	93,641	38,330	33,180	3,452	168,603
1985	86,857	39,207	33,930	5,653	165,647
1986	83,163	38,023	31,662	511	153,359
1987	107,678	40,123	24,846	1,677	174,324
1988	79,828	20,369	21,438	1,324	122,959
1978-88 average	91,003	41,397	23,388	3,222	159,010
1989	94,853	35,581	22,611	2,913	155,958
% Change					
1989 from 1978-88 average	+4%	-14%	-3%	-10%	-2%
1989 from 1988	+19%	+75%	+5%	+120%	+27%

B. POPULATION STATUS

- Populations of large Canada geese continue to thrive in agricultural Saskatchewan. Field researchers report that the Western Prairie (WPP) and Great Plains (GPP) populations have increased in recent years and are now above the upper regulatory threshold as outlined in the Central Flyway Tall Goose Plan. Hi-Line (large Canada geese) and Short Grass Prairie (SGP) populations have stabilized at, or slightly above, objectives identified in the respective management plans.
- Lesser snow geese have steadily increased over the past few years and the population is now well above the objective established in the Central Flyway Management Plan. Saskatchewan sportsmen are encouraged to harvest more of these geese.

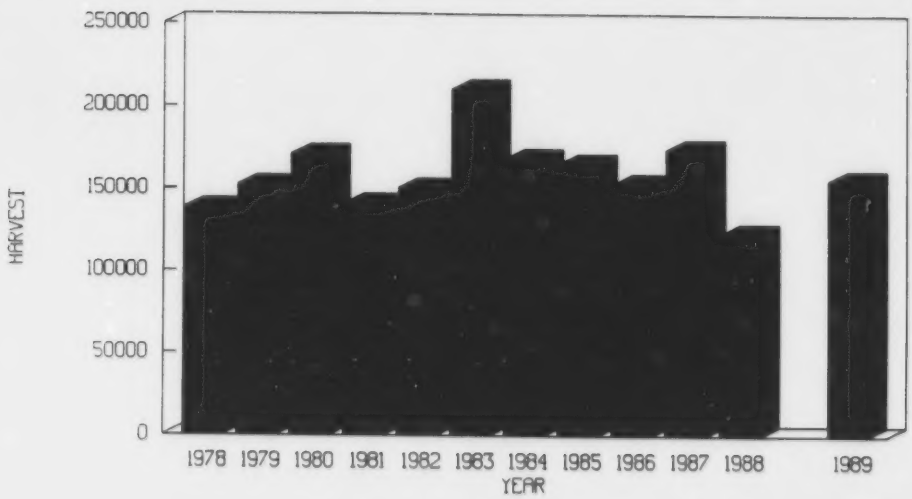


Figure 36. Saskatchewan goose harvest, 1978-89 (after CWS).

- Mid-continent white-fronted geese are divided into western and eastern segments. The eastern subpopulation is stable, but the western segment is well below the triggering level outlined in the white-fronted goose management plan. In 1988, the USFWS expressed concern over the status of the mid-continent white-fronted goose population and recommended the Central and Mississippi Flyway Councils examine the situation and develop appropriate regulatory actions. A special meeting of the Central Flyway Technical Committee was held in January, 1990 to discuss the status of goose populations within the flyway, including whitefronts.
- The Technical Committee recommended no change in whitefront regulations for the 1990 hunting season. This is an interim harvest strategy which breaches guidelines set out in the Central Flyway Management Plan and is contingent upon organized and planned marking studies on the breeding, migration and wintering grounds. The Arctic Goose Joint Venture (AGJV) has been encouraged to give a high priority to white-fronted goose research. Various marking studies in the Canadian Arctic will provide much needed data to better delineate the two subpopulations.

C. 1990 MANAGEMENT OBJECTIVES

- With the exception of calendar adjustments, goose season dates and bag limits remain the same as 1989.

D. 1990 GOOSE SEASONS

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Geese (Sask. Residents Only)	Zones 1 to 14, 19, and 22 to 29	Sept. 26 - Dec. 15	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 42, 44 to 47, and 52, including Valeport and Last Mountain Lake Wildlife Management Units	Sept. 19 - Dec. 15	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 43, 48 to 51, and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac la Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; Bronson Forest Recreation Site	Sept. 1 - Dec. 15	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
Geese (Canadian Residents and Non-residents)	Zones 1 to 14, 19, and 22 to 29	Oct 3 - Dec. 15	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 52, 54, 56, and 57 including Valeport, Last Mountain Lake, Horsehide Lake and Fort a la Corne Wildlife Management Units	Oct 3 - Dec. 15	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 53, 55 and 58 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac la Ronge Provincial Parks; Bronson Forest Recreation Site	Sept. 1 - Dec. 15	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)

All hunters please note:

Starting Oct. 3 in Zones 15 to 18, 20 to 22, 30 to 43, and 48 to 76, three additional snow or Ross' geese may be taken daily, and six additional snow or Ross' geese may be kept in possession.

Starting Oct. 15 in Zones 1 to 14, 19, 23 to 29, and 44 to 47, three additional snow or Ross' geese may be taken daily, and six additional snow or Ross' geese may be kept in possession.

Prior to Oct. 21, in Zones 1 to 59, 67, 68, and 69, any open season for geese includes that portion of the day from one-half hour before sunrise to 12:00 noon local time. From Oct. 22 to Dec. 15, geese may be hunted all day in all open zones.

SANDHILL CRANES

A. REVIEW OF 1989 HUNTING SEASON

- The crane harvest in 1989 was 2,318 birds, a decrease of 54 per cent from 1988 and 36 per cent from the 10-year average (Table 87).

Table 87. Estimated retrieved kill of sandhill cranes in Saskatchewan, 1979-89 (federal estimates after Progress Note 126 and interim data via L. Metras, CWS Ottawa).

Year	Sandhill Crane Harvest
1979	2,821
1980	4,690
1981	2,452
1982	2,040
1983	2,720
1984	3,043
1985	4,468
1986	4,455
1987	4,522
1988	4,991
10 year average	3,620
1989	2,318
% Change	
1989 from 1988	-54%
1989 from 10 year average	-36%

B. POPULATION STATUS

- Spring population data from the Co-ordinated Spring Mid-Continent Sandhill Crane Survey indicate a stable population in the Central Flyway. It does not appear that present harvest regulations are having an adverse effect on the status of these birds.
- In recent years there have been requests for a crane season in the Forest Fringe area of east-central Saskatchewan. Distribution and abundance of sandhill cranes was investigated in this area during fall, 1989. Study results indicated there were not sufficient birds in the Forest Fringe area to warrant an expansion of the crane season.

C. 1990 MANAGEMENT OBJECTIVES

- The inclusion of sandhill cranes on Appendix 2 of the CITES treaty continues to pose a problem for non-resident alien hunting. The 1990 season will continue to be restricted to residents of Canada.

D. 1990 SANDHILL CRANE SEASON

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Sandhill Cranes (Sask. Residents and Canadian Residents Only)	Zones 19, 21 to 24, 29, 30, 37 to 42, 44, and 52	Sept. 1 - Sept. 18	5 daily 10 possession
	Zones 11 to 14	Sept. 10 - Sept. 25	5 daily 10 possession

UPLAND GAME BIRDS

A. REVIEW OF 1989 HUNTING SEASON

- In 1989, game bird licence sales dropped by 8 per cent from 1988 (Table 1). This reduction resulted in the loss of upland game bird hunters primarily as migratory bird licence sales remained similar to 1988. However, game bird licence sales were 41 per cent below the long-term average. The number of active upland bird hunters in 1989 also decreased by the same percentage as game bird licence sales (Table 88 and 90, Figure 37). This decline may be a reaction to a disappointing hunting season the previous year.

- Total upland bird harvest in 1989 decreased to 205,273 birds from 244,055 in 1988, a reduction of 16 per cent. The Grassland ecozone experienced the greatest decrease in total harvest (Table 89). The Farmland ecozone showed the greatest percentage of the provincial harvest while the Forest ecozone ranked second. Hungarian partridge and sharp-tailed grouse are the dominant upland species in the Grassland, Farmland and Parkland ecozones, while the ruffed grouse is the mainstay of the Forest ecozone.

Table 88. Saskatchewan upland game bird hunting activity, 1973-89.

Year	Active Upland Bird Hunters	Upland Bird Hunter Days	Hunter Days/ Active Hunter
1973	28,500	53,275	1.9
1974	21,857	37,801	1.7
1975	27,812	48,161	1.7
1976	39,035	86,525	2.2
1977	41,772	93,496	2.2
1978	36,766	72,378	2.0
1979	36,373	72,096	2.0
1980	36,786	75,578	2.1
1981	32,147	68,988	2.1
1982	26,884	50,382	1.9
1983[a]	28,266	60,146	2.1
1984	22,334	44,854	2.0
1985	20,777	40,149	1.9
1986	28,849	74,900	2.6
1987	24,918	83,179	3.3
1988	25,822	72,059	2.8
1973-1988 Average	29,931	64,623	2.2
1989	23,712		
% Change			
1989 from 1988	-8.2%		
1989 from Average	-20.8%		

[a]Statistics from 1983 to present includes pheasant hunter activities.

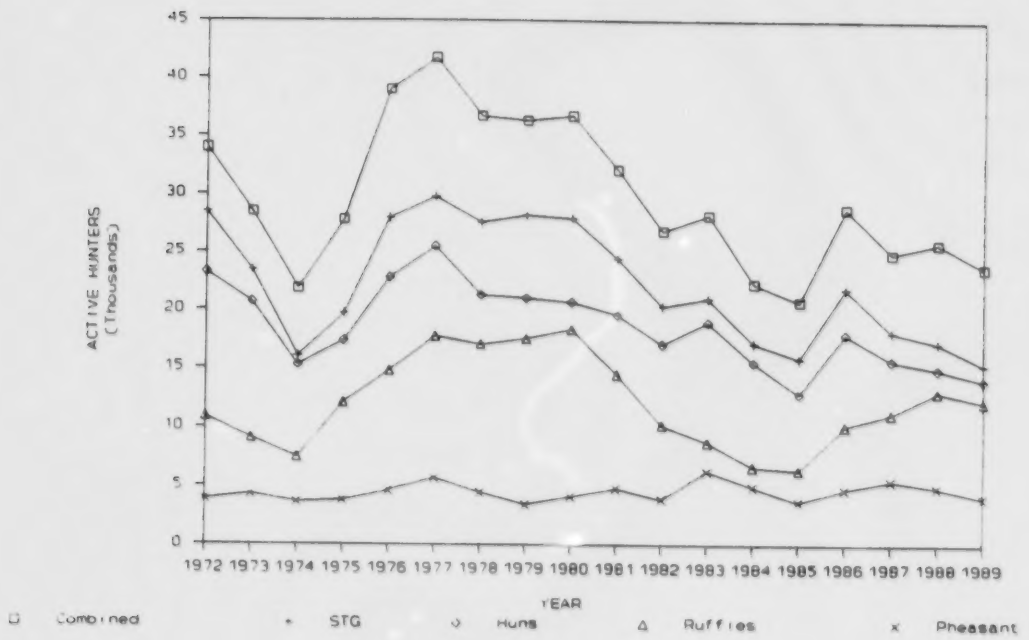


Figure 37. Active upland game bird hunters in Saskatchewan, 1972-89.

Table 89. Saskatchewan upland game bird harvest by ecozone, 1988-89.

	Total Upland Bird Harvest (% of Totals)		Per Cent Change 1989 to 1988
	1988	1989	
Grassland	43,491 (17.8)	29,970 (14.8)	-31.1
Farmland	72,336 (29.7)	61,084 (30.1)	-15.6
Parkland	46,898 (19.2)	48,722 (24.0)	+3.9
Forest Fringe	26,965 (11.0)	20,436 (10.1)	-24.2
Forest	53,550 (22.0)	41,077 (20.2)	-23.2
Northern Shield	618 (0.2)	322 (0.2)	-47.9
Provincial	244,055	205,273	-15.9

Table 90. Saskatchewan upland game bird harvest summary, 1989.

	Sask. Resident	Non-resident, Cdn.	Non-resident, Alien	All Hunters
Sharp-tailed Grouse				
Harvest	41,369 (85.29%)	10 (0.02%)	7,123 (14.69%)	48,502 (100.00%)
Successful Hunters (% of Active)	10,260 (74.40%)	10 (100.00%)	1,296 (82.65%)	11,566 (75.26%)
Active Hunters	13,790	10	1,568	15,368
Kill/Active Hunter	3.0	1.0	4.5	3.2
Kill/Successful Hunter	4.0	1.0	5.5	4.2
Hungarian Partridge				
Harvest	50,325 (77.41%)	73 (0.11%)	14,616 (22.48%)	65,014 (100.00%)
Successful Hunters (% of Active)	9,460 (75.38%)	10 (100.00%)	1,184 (82.22%)	10,654 (76.10%)
Active Hunters	12,550	10	1,440	14,000
Kill/Active Hunter	4.0	7.3	10.1	4.6
Kill/Successful Hunter	5.3	7.3	12.3	6.1
Ruffed Grouse				
Harvest	68,441 (96.69%)	0 (0.00%)	2,340 (3.31%)	70,781 (100.00%)
Successful Hunters (% of Active)	9,940 (86.14%)	0 (.%)	504 (78.75%)	10,444 (85.75%)
Active Hunters	11,540	0	640	12,180
Kill/Active Hunter	5.9	--	3.7	5.8
Kill/Successful Hunter	6.9	--	4.6	6.8
Spruce Grouse				
Harvest	10,041 (97.51%)	0 (0.00%)	256 (2.49%)	10,297 (100.00%)
Successful Hunters (% of Active)	2,280 (65.14%)	0 (.%)	88 (52.38%)	2,368 (64.56%)
Active Hunters	3,500	0	168	3,668
Kill/Active Hunter	2.9	--	1.5	2.8
Kill/Successful Hunter	4.4	--	2.9	4.3
Pheasant				
Harvest	10,378 (100.00%)	0 (0.00%)	0 (0.00%)	10,378 (100.00%)
Successful Hunters (% of Active)	2,720 (67.16%)	0 (.%)	0 (0.00%)	2,720 (66.37%)
Active Hunters	4,050	0	48	4,098
Kill/Active Hunter	2.6	--	0.0	2.5
Kill/Successful Hunter	3.8	--	--	3.8
Ptarmigan				
Harvest	301 (100.00%)	0 (0.00%)	0 (0.00%)	301 (100.00%)
Successful Hunters (% of Active)	120 (30%)	0 (.%)	0 (0.00%)	120 (27.27%)
Active Hunters	400	0	40	440
Kill/Active Hunter	0.8	--	0.0	0.7
Kill/Successful Hunter	2.5	--	--	2.5
All Upland Game Birds				
Harvest	180,855 (88.10%)	83 (0.04%)	24,335 (11.85%)	205,273 (100.00%)
Successful Hunters (% of Active)	19,339 (89.01%)	10 (100.00%)	1,722 (87.23%)	21,072 (88.87%)
Active Hunter	21,728	10	1,974	23,712
Kill/Active Hunter	8.3	8.0	12.3	8.7
Kill/Successful Hunter	9.4	8.0	14.1	9.7

B. POPULATION STATUS

1. 1989 Upland Bird Reproduction

- Upland game birds normally require good reproductive success to maintain population levels. Since mortality is high on all age classes, annual recruitment is important to sustain populations and maintain high quality hunting opportunity.

- In 1988, upland bird reproduction failed but the population managed to remain at acceptable levels because of the record high breeding population indices in 1988, based on spring surveys. Although drought conditions persisted through the 1989 season reproduction improved over 1988. Wing samples collected from hunter killed birds revealed higher than average reproduction for ruffed grouse, Hungarian partridge and sharp-tailed grouse (Figure 38). Spring breeding surveys for pheasants and sharp-tailed grouse in 1990 show improvement over 1989 but remained below 1987 and 1988 indices. Another mild winter in the province was also a significant factor in this population growth over 1988.

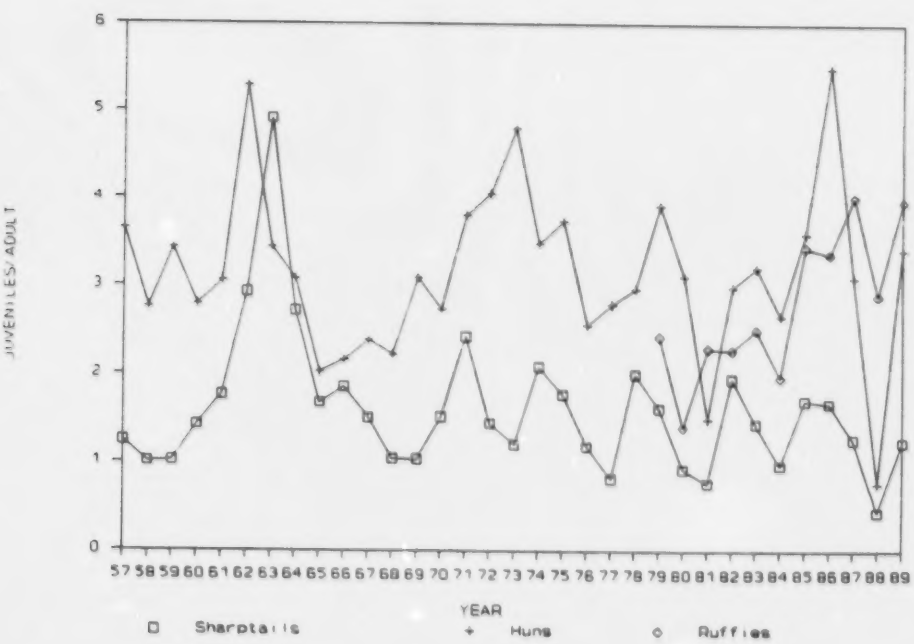


Figure 38. Saskatchewan upland game bird fall age ratios, 1957-89. Based upon wing samples collected in harvest.

- Incubation and hatching are also critically important in population stability. Sharp-tailed grouse in Saskatchewan normally begin incubation during late April and incubation peaks in the third week of May (Figure 39). Three weeks after this peak, re-nesting or late breeding rarely occurs. Hatching dates follow a similar pattern to the incubation curve with the peak of hatch occurring in mid-June, 24 days after the peak of incubation. By July, over 60 per cent of broods have left the nest and chicks are foraging for food. Adverse weather conditions, coupled with poor habitat conditions, can severely impact incubation and brood survival at this time.

- Hungarian partridge have the same incubation period (24 days) as sharptails but nest somewhat later. Incubation peaks during late May and the first week of June with over 65 per cent of the hatch completed by the second week of July (Figures 39 and 40).

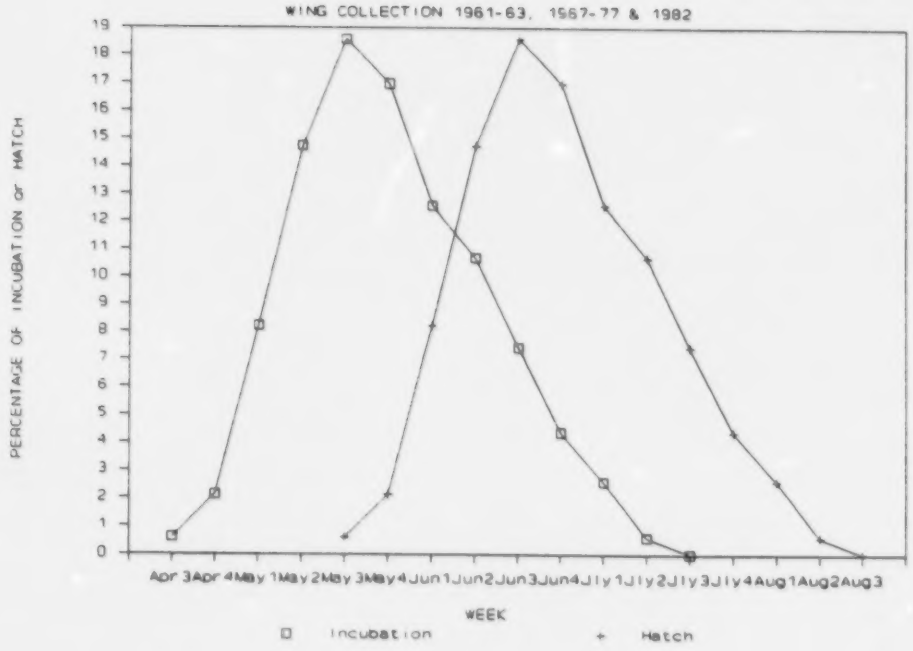


Figure 39. Incubation and hatching chronology for sharp-tailed grouse in Saskatchewan.

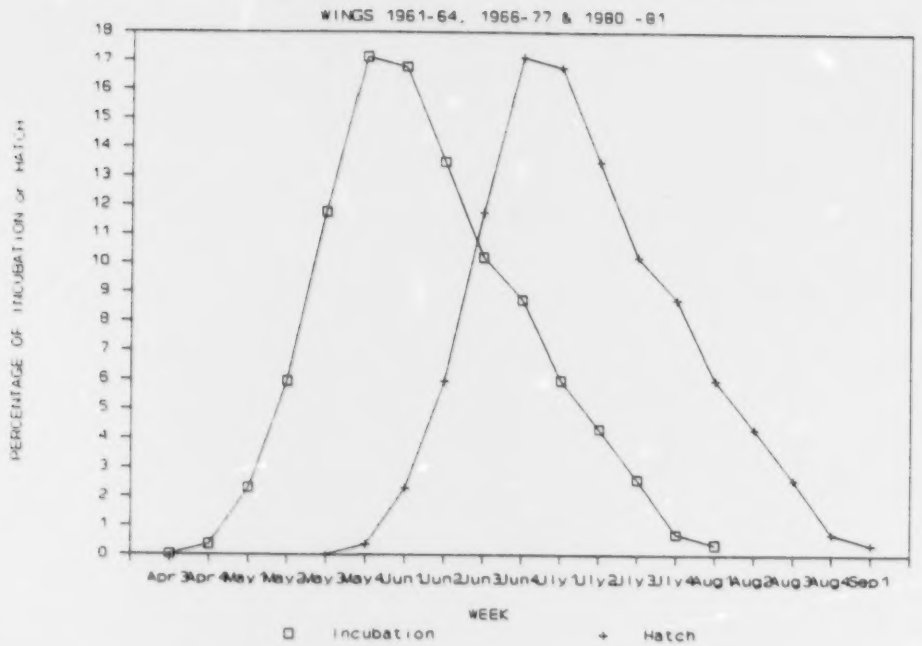


Figure 40. Incubation and hatching chronology for Hungarian Partridge in Saskatchewan.

SHARP-TAILED GROUSE

A. REVIEW OF 1989 HUNTING SEASON

- The 1989 harvest of 48,502 birds showed a 6 per cent decrease from the 1988 harvest and a 40 per cent decrease from the long-term average (Tables 91 and 92, Figure 37). This represents the second lowest harvest since 1972, only the 1985 total of 41,788 was lower. The 1989 sharp-tailed grouse season was open from September 20 to November 4 in the south (WMZ 1-47) and September 5 to December 2 in the north (WMZ 48-76). In the south, the season length was reduced by two weeks creating 40 possible hunter days. Based on previous data it was estimated that this shorter season would reduce the harvest by 12 per cent. In reality, in the Grassland, Farmland and Parkland ecozones, the 1989 harvest was reduced by 9 per cent but still comprised 84 per cent of the provincial total. Longer season dates in the Forest Fringe and Forest ecozones were maintained because of the low harvest and to allow the open season to coincide with ruffed grouse.

Table 91. Sharp-tailed grouse hunting statistics by Saskatchewan ecozone for 1988-89.

	Grassland		%	Farmland		%	Parkland		%
	1988	1989	Change	1988	1989	Change	1988	1989	Change
Harvest	10,658	6,139	-42.4	21,065	20,146	-4.4	12,746	14,022	+10.0
Percent of Provincial Harvest	20.6	12.7		40.7	41.7		24.6	29.0	
Active Hunters per WMZ[a]	5,341	3,642	-31.8	11,164	9,042	-19.0	5,834	6,046	+3.6
Hunter Days	3,857			8,376			4,826		
Hunter Success[b]	2.8			2.5			2.6		

	Forest Fringe		%	Forest		%	Province		%
	1988	1989	Change	1988	1989	Change	1988	1989	Change
Harvest	3,068	3,378	+10.1	4,178	3,835	-8.2	51,725	48,502	-6.2
Percent of Provincial Harvest	5.9	7.0		8.1	7.9		100.0	100.0	—
Active Hunters per WMZ[a]	1,823	1,854	+1.7	2,148	2,420	+12.7	17,240	15,368	-10.8
Hunter Days	1,163			1,562			19,795		
Hunter Success[b]	2.6			2.7			2.6		

[a]Active hunters per WMZ represents recorded hunting activity in one or more WMZ. Example: A hunter may hunt in 3 WMZ for the same species in one season. Instead of being calculated as just one hunter per one WMZ, he is computed as one hunter per each WMZ he hunted in, being 3 separate hunters per WMZ in this example. this statistic is useful in determining the intensity of search for birds and/or the variety of species hunted which takes the hunter into different WMZ.
[b]Harvest per hunter days.

Table 92. Sharp-tailed grouse hunting data for Saskatchewan, 1972-89.

Year	Active Sharptail Hunters	Sharp-tailed Grouse Hunter Days	Sharptail Harvest	Sharptails Harvested/ Active Sharptail Hunter
1972	28,575	N/A	107,813	3.8
1973	23,498	N/A	88,178	3.8
1974	16,041	N/A	48,808	3.0
1975	19,746	N/A	60,428	3.1
1976	27,976	N/A	130,784	4.7
1977	29,794	N/A	107,003	3.6
1978	27,577	41,153	104,497	3.8
1979	28,221	43,428	126,824	4.5
1980	27,949	43,044	108,455	3.9
1981	24,461	38,710	82,745	3.4
1982	20,375	28,629	51,741	2.5
1983	21,068	31,392	58,823	2.8
1984	17,164	17,421	54,233	3.2
1985	15,838	16,785	41,788	2.6
1986	21,860	28,761	78,565	3.6
1987	18,151	26,372	78,210	4.3
1988	17,240	19,796	51,725	3.0
1972-1988 Average	22,678	30,499	81,213	3.6
1989	15,368		48,502	3.2
% Change				
1989 from 1988	-10.8%		-6.2%	+6.7%
1989 from Average	-32.2%		-40.3%	-11.1%

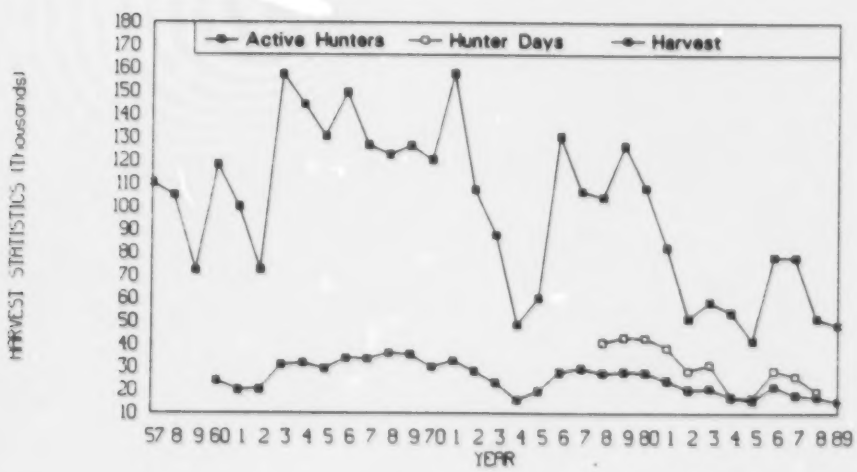


Figure 41. Saskatchewan sharp-tailed grouse hunting activity, 1957-89.

- The number of active hunters (15,368) was 11 per cent lower than the 17,240 hunters in 1988, and 32 per cent lower that the long-term average. In 1989, Saskatchewan had the fewest number of active hunters since 1972. The weekly harvest showed a gradual increase until the week starting October 8 where it peaked and then decreased gradually (Figure 42). During that one week 9,400 birds were harvested or 19 per cent of the provincial take.

- The harvest in the Grassland ecozone was reduced to only 12.7 per cent of the provincial total which is a significant reduction from the corresponding figure of 20.6 per cent in 1988 (Table 91). Total harvest for the Grassland ecozone of 6,139 birds represented a 42.7 per cent decrease from 1988. The number of active hunters also dropped (31.8%) from the previous year. Prior to 1989 the daily bag limit was five but was reduced to three in 1989 in reaction to drought conditions and poor reproduction.

- The Farmland zones have traditionally produced the greatest sharp-tailed grouse numbers and therefore are expected to comprise most of the harvest. In 1989 the Farmland zones produced 41.7 per cent of the provincial take, similar to the 40.7 per cent taken in 1988. Total harvest for this ecozone remained similar at 20,146 birds compared to 21,065 in 1988.

- The Parkland zones are now responsible for the second highest harvest in the province with a total of 14,022 birds taken in 1989. This represents an increase of 10.0 per cent over the previous year. Although the Grassland and Farmland ecozones showed a reduction in the number of active hunters, the Parkland ecozone showed a slight increase to 6,046. This gradual shift of hunters north to the Parklands from their more traditional southern hunting areas may be in response to the drought conditions experienced in the Grassland and Farmland ecozones.

- The Forest Fringe and Forest ecozones showed a combined harvest of 7,213 birds or 15 per cent of the provincial total. In these zones, sharp-tailed grouse are a secondary species to the ruffed grouse and most of the harvest is incidental while hunting ruffed grouse.

B. POPULATION STATUS

1. 1989 Sharp-tailed Grouse Reproduction

- Sharp-tailed grouse reproduction is calculated using wing and tail feather samples of hunter killed birds. Although sample sizes were small, the reproductive index showed an index of 1.24 juveniles per adult in harvest compared to 0.44 in 1988 (Table 93, Figure 43). This is still 23 per cent below the long-term average dating back to 1957.

2. 1990 Breeding Population Status

- The 1990 provincial population index for breeding sharp-tailed grouse was estimated to be 1.85 males per km² (4.78/mi²), an increase of 19 per cent over 1988 (Table 94). The Farmland ecozone, which is the most important ecozone in the province for sharptails, showed an increase of 31 per cent over the breeding index for 1988. The Grassland and Parkland ecozones also showed modest increases of 16 per cent and 13 per cent, respectively.

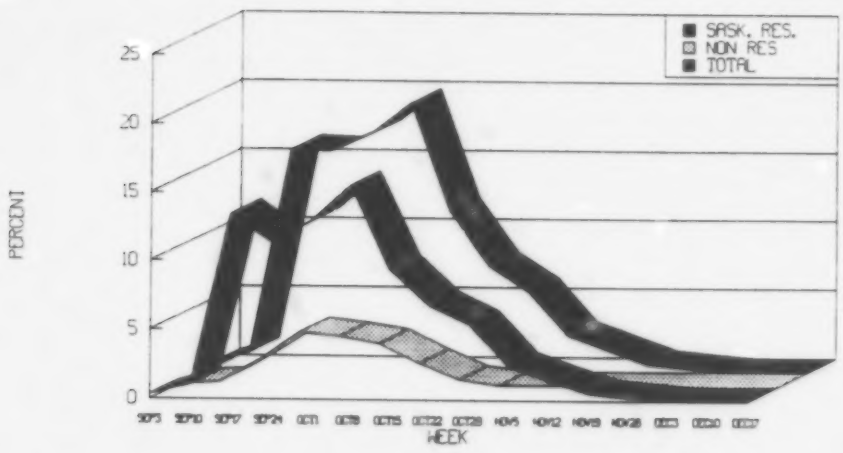


Figure 42. Percentage of sharp-tailed grouse harvest by residency and weekly intervals.

- On an annual basis, upland bird populations may vary somewhat between ecozones but similar trends are apparent over the long-term. Sharp-tailed grouse populations in one ecozone usually coincide with similar trends in other regions of the province (Figure 44), although changes may not be as pronounced for one area as compared to another. Historic density estimates for sharp-tailed grouse display an apparent 8-year cycle since 1969 (inception of present day density survey technique) (Figure 44). When factors such as reproduction and harvest are compared to this cycle no correlation is evident in some years (Figure 43). In other cases where there is a link it is not strong enough to account for the overall rise or fall in population densities the following year. Therefore, it appears that fluctuations in sharptail population are much more the result of complex environmental factors interacting, than just a "cause-and-effect" relationship with annual harvest and reproduction.

Table 93. Sharp-tailed grouse reproductive index (juveniles/adult), 1975-89 (based on wing samples from harvest).

Year	Grassland	Farmland	Parkland	Forest	Province
1957	—	—	—	—	1.25
1958	—	—	—	—	1.01
1959	—	—	—	—	1.02
1960	1.13	1.32	1.76	—	1.43
1961	1.57	1.27	1.64	—	1.77
1962	2.03	3.10	3.25	—	2.93
1963	4.30	6.28	4.74	—	4.91
1964	2.26	2.47	1.76	—	2.72
1965	1.52	1.76	1.61	—	1.68
1966	—	—	—	—	1.86
1967	—	—	—	—	1.51
1968	—	—	—	—	1.05
1969	—	—	—	—	1.04
1970	—	—	—	—	1.52
1971	—	—	—	—	2.43
1972	—	—	—	—	1.45
1973	—	—	—	—	1.21
1974	—	—	—	—	2.09
1975	1.67	1.95	1.06[a]	2.38[a]	1.78
1976	0.76	1.62	2.09	1.42	1.19
1977	0.56	0.88	0.84	2.80[a]	0.82
1978	2.00	2.18	1.78	2.73[a]	2.01
1979	0.73	1.75	1.68	3.81	1.62
1980	0.46	0.94	1.66	1.51	0.93
1981	0.62	0.81	0.98	0.62	0.77
1982	0.85	2.19	2.44[a]	2.50[a]	1.96
1983	1.07	1.62	1.36	0.58	1.45
1984	0.53	1.06	1.71	2.33[a]	0.97
1985	1.08	1.94	1.36	8.67[a]	1.71
1986	2.22	1.60	1.02	3.29	1.68
1987	1.36	1.17	1.55	1.38	1.27
1988	0.32	0.14	0.51	1.75	0.44
1957-88 Average	1.35	1.80	1.74	2.56	1.61
1989	1.43[a]	0.29	2.71	3.86	1.24
% Change					
1989 from 1988	+347%	+107%	+431%	+120%	+182%
1989 from Average	+6%	-64%	+56%	+51%	-23%

[a]Sample less than 50 wings.

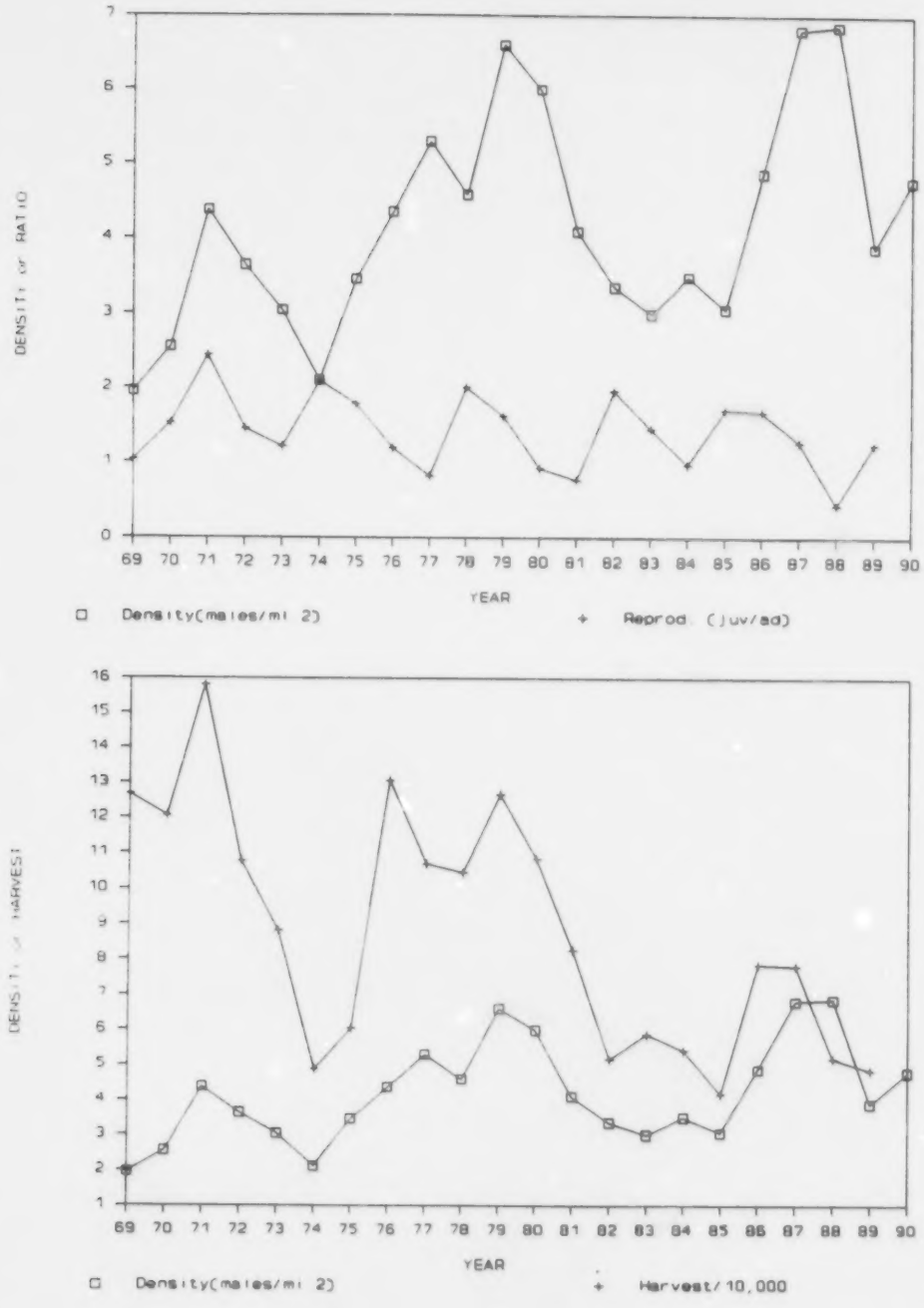


Figure 43. Comparison of reproductive success and harvests to provincial breeding population densities.

Table 94. Sharp-tailed grouse breeding population surveys, April-May 1990.

Wildlife Management Zone	Surveyed Area	Area Surveyed (km²)	Breeding Males/km²				
			1986	1987	1988	1989	1990
1	Amulet	51.8	1.24	2.12	2.70	1.00	0.66 (1.70)
9	Bowies Ranch	49.2	1.24	2.56	3.21	2.09	2.68 (6.94)
10	North Great Sandhills	49.2	2.30	2.95	2.27	1.62	1.95 (5.05)
10	Elkinks	41.4	—	4.20	4.10	1.42	2.12 (5.50)
Grassland		191.6	1.64	2.86	3.02	1.70	1.83 (4.73)
							Difference[a]: +16%
15	Goodwater	46.6	3.17	5.47	4.25	2.35	2.83 (7.33)
17	Strawberry Lakes	41.4	1.66	1.64	1.37	1.30	0.94 (2.44)
19	Mortlach	49.2	1.62	2.57	2.97	1.45	2.12 (5.50)
19	Val Jean	33.0	6.54	11.1	12.7	4.93	6.24 (16.2)
20	Bethune	62.0	0.81	0.88	0.90	0.35	0.26 (0.67)
21	Gibbs	41.4	1.28	1.57	1.86	1.37	1.40 (3.62)
22	Hanley	93.2	—	—	—	0.57	0.97 (2.52)
23	Elbow	41.4	2.80	3.64	2.61	1.78	3.38 (8.69)
24	Coteau	64.8	1.32	1.00	—	0.60	1.60 (4.16)
28	Duperow	36.3	4.96	4.61	5.65	3.99	3.66 (9.50)
30	Asquith	31.1	1.22	1.42	1.61	0.96	1.70 (4.42)
Farmland		540.6	2.22	2.88	2.63	1.44	1.99 (5.14)
							Difference: +31%
31	Coalfields	43.4	—	2.74	2.95	1.61	1.86 (4.83)
33	Tecumseh	51.8	2.90	4.42	4.21	2.66	2.59 (6.70)
34	Moosomin South	69.9	1.29	0.89	—	1.14	1.82 (4.70)
39	Goodspirit	41.4	2.05	2.29	1.70	1.32	1.71 (2.59)
40	Quill Lakes	41.4	0.87	1.08	1.39	1.18	0.84 (2.19)
41	Wolverine	62.1	—	—	—	—	1.38 (3.58)
45	Aroma Lake	46.6	—	0.90	0.62	1.09	1.09 (2.83)
Parkland		356.6	1.66	1.96	2.22	1.39	1.64 (4.24)
							Difference: +13%
Province (22 survey blocks)		1,088.8	1.97	2.63	2.65	1.50	1.85 (4.78)
							Difference: +19%

[a]Per cent difference in 1990 male sharptail density figures compared to 1989; based on comparable survey blocks only.

C. 1990 MANAGEMENT OBJECTIVES

- Even though the drought continued into the 1989 hatching year, conditions were better throughout the sharptail range than in 1988. Average reproduction during the summer of 1989 and higher breeding indices for the spring of 1990 indicate sharp-tailed grouse populations are recovering from the virtual reproductive failure of 1988 and are now approaching 1986 levels.

- Cool, moist weather in May, a requirement for good incubation, should produce good nesting success this spring. These conditions are also essential in producing brood escape cover which prevents excessive losses to both avian and mammalian predators. The result should be increased reproductive success and subsequent population growth. Populations have not yet reached desired levels, particularly in the Grassland ecozone and restrictive seasons should be maintained until this end is achieved.

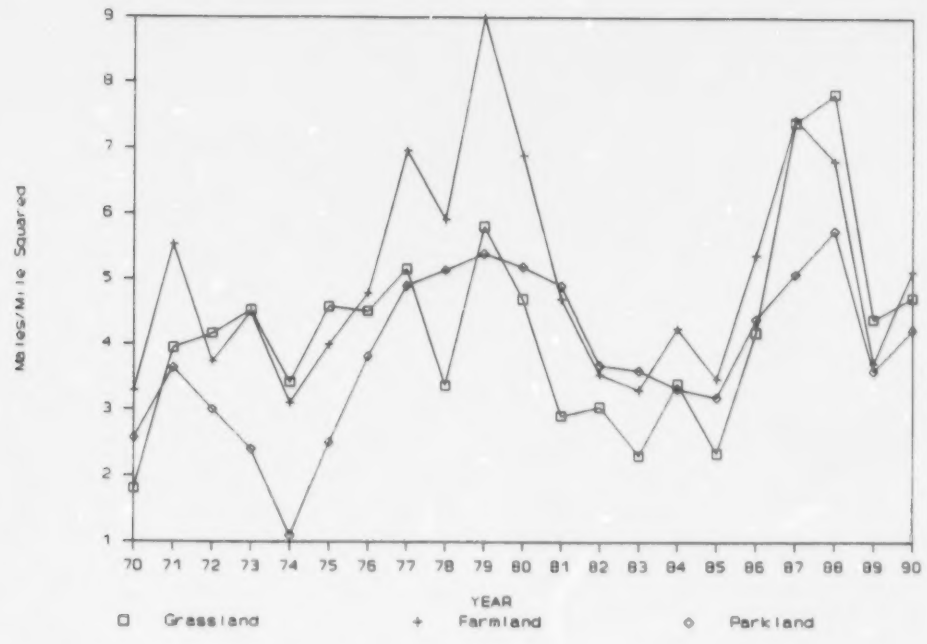


Figure 44. Sharp-tailed grouse breeding population densities (males/mi²).

D. 1990 SHARP-TAILED GROUSE SEASON

- In 1989 sharptail bag limits were standardized province-wide to 3 daily and 6 possession. Prior to 1989 the Grassland and most Farmland zones had limits of 5 daily and 10 possession. These same zones suffered most from drought and habitat degradation or destruction, and therefore these measures were taken to help populations recover. Season lengths were also reduced by two weeks to allow for population growth without discouraging hunter participation.
- Although the population has been responding, primarily due to habitat and weather improvements, the same season structure will be maintained for 1990 to allow for further growth. Seasons in the northern zones will open earlier to coincide with ruffed grouse season, the primary upland bird species of interest.

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Sharp-tailed Grouse (All Hunters)	Zones 1 to 8, 15 to 24, 29 to 47, including Last Mountain Lake Wildlife Management Unit; starting October 3, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; starting October 31, Elbow Wildlife Management Unit	Sept. 19 - Nov. 3	3 daily 6 possession
	Zones 48 to 76, including Clearwater River, Lac la Ronge, Meadow Lake, and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; Bronson Forest Recreation Site	Sept. 10 - Dec. 1	3 daily 6 possession
Sharp-tailed Grouse (Sask. Residents and Canadian Residents Only)	Zones 9 to 14, and 25 to 28	Sept. 19 - Nov. 3	3 daily 6 possession

HUNGARIAN PARTRIDGE

A. REVIEW OF 1989 HUNTING SEASON

- In 1989, the reported Hungarian partridge harvest was 65,014 birds, 17 per cent lower than the previous year's total of 78,621 but still remained near the long-term average (Table 95, Figure 45). Total harvest was greater than the sharp-tailed grouse making the Hungarian partridge the second most harvested upland species, only ruffed grouse reported a higher harvest (Table 90). The number of active hunters decreased by 6 per cent to 14,000 compared to 1988 but was 24 per cent below the long-term average. The average harvest per hunter increased to 4.6 from 3.7 in 1988 and 3.6 over the long term.

Table 95. Hungarian partridge hunting data for Saskatchewan, 1972-89[a].

Year	Active Hungarian Partridge Hunters	Partridge Hunter Days	Hungarian Partridge Harvest	Partridge Harvest/ Active Hunter	Partridge Harvest/ Species Hunter Day
1972	23,360		77,093	3.3	
1973	20,741		74,668	3.6	
1974[b]	15,276		33,608	2.2	
1975[b]	17,356		45,125	2.6	
1976[b]	22,835		90,897	4.0	
1977[b]	25,535		93,616	3.7	
1978	21,320		60,585	2.8	
1979	21,041		69,127	3.3	
1980	20,698		66,349	3.2	
1981	19,617	28,362	64,349	3.3	2.2
1982	17,056	23,136	41,743	2.4	1.8
1983	19,014	26,409	61,073	3.2	2.3
1984	15,511	16,596	59,794	3.9	3.6
1985	12,867	13,347	41,998	3.3	3.1
1986	17,964	27,626	92,270	5.1	3.3
1987	15,699	26,950	103,903	6.6	3.8
1988	14,962	21,311	78,621	3.7	3.6
1972-88 Average	18,874	22,967[c]	67,930	3.6	3.0
1989	14,000		65,014	4.6	
% Change					
1989 from 1988	-6.4%		-17.3%	+24.3%	
1989 from Average	-23.7%		-4.3%	+27.8%	

[a]Forest and Shield Division excluded from data because of insignificance to Hungarian partridge hunting.
[b]Inaccurate data were published for these years prior to 1979 corrections.
[c]1981-88 average only.

Table 96. Hungarian partridge hunting data for Saskatchewan by ecozone, 1989 vs 1988.

	Grassland		%	Farmland		%	Parkland		%
	1988	1989	Change	1988	1989	Change	1988	1989	Change
Harvest	26,088	17,342	-33.5	43,395	35,023	-19.3	6,671	10,990	+64.7
Percent of Provincial Harvest	33.2	26.7		55.2	53.9		8.5	16.9	
Active Hunters per WMZ[a]	6,666	5,165	-22.5	12,248	9,953	-18.7	4,169	4,503	+8.0
Hunter Days	6,618			11,793			2,740		
Hunter Success[b]	3.9			3.7			2.4		

	Forest Fringe		%	Provincial		%
	1988	1989	Change	1988	1989	Change
Harvest	472	1,109	+135.0	78,621	65,014	-17.3
Precent of Provincial Harvest	0.6	1.7		1988	100	100
Active Hunters per WMZ[a]	505	820	+62.4	14,962	14,000	-6.4
Hunter Days	160			21,311		
Hunter Success[b]	3.0			3.7		

[a]Forest and Northern Shield ecozones excluded from hunter days and harvest calculations. Hungarian partridge are essentially absent from these areas and partridge hunting is not permitted in WMZ 56-76.
[b]Harvest per hunter days.

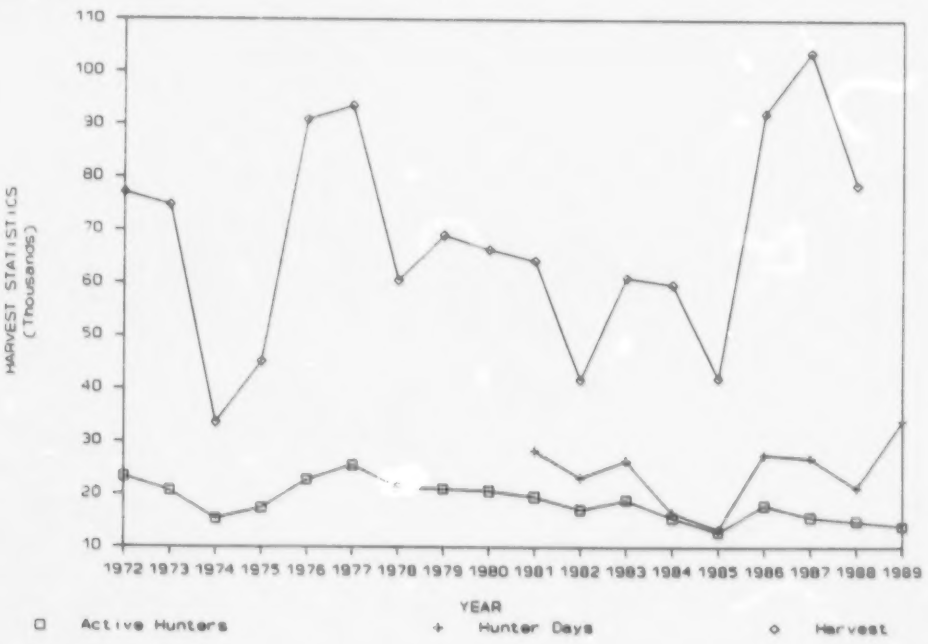


Figure 45. Saskatchewan Hungarian partridge hunting activity, 1972-89.

- The Saskatchewan resident Hungarian partridge harvest increased gradually from the start of the season until it peaked in the week starting October 8th (Figure 46). The second highest weekly harvest was the previous week. The harvest during the first two weeks in October accounted for 33 per cent of the total harvest. These two weeks coincide with the opening of the pheasant season and traditionally a substantial harvest occurs during this time frame. The late season, which ran for 2 1/2 weeks in December received very little participation and a harvest of only 45 birds.

- The majority of the non-resident harvest occurred during the period starting September 24 through October 7. These two weeks are also the first full two weeks of the non-resident goose season. One can conclude that non-resident bird hunters are primarily goose hunters and upland birds are hunted occasionally.

- The three important ecozones for huns are the Farmland, Grassland and Parkland listed in order of harvest and hunter participation. Both the Grassland and Farmland ecozones showed declines in harvest but the 34 per cent decrease in the Grasslands is most notable and exhibits the same trend as the sharp-tailed grouse harvest. The Parkland showed a small increase (7%) in harvest.

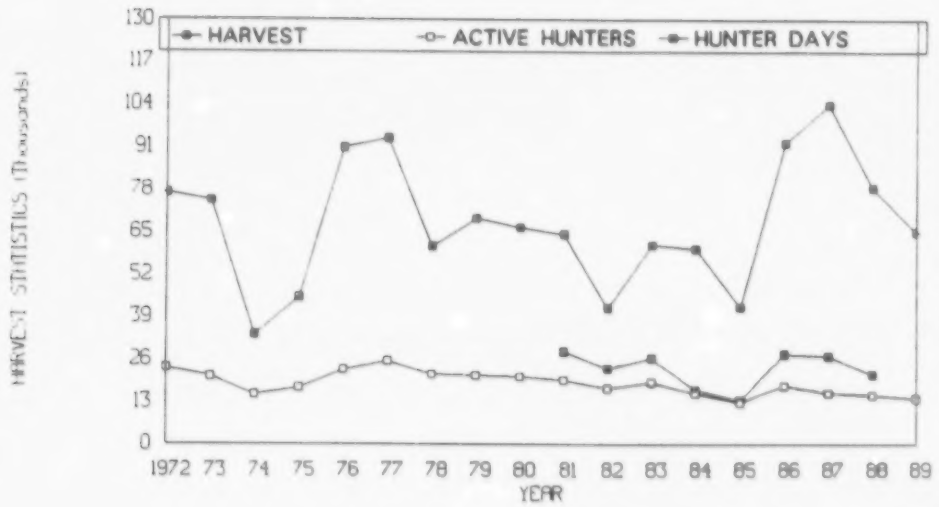


Figure 46. Saskatchewan 1989 Hungarian partridge harvest by residency and weekly intervals.

B. POPULATION STATUS

1. 1989 Hungarian Partridge Reproduction

- The 1989 reproduction index of 3.42 juveniles per adult bird represents a dramatic increase over the all time low of 0.77 in 1988 (Table 97, Figure 38). Reproductive success was calculated from a wing sample taken from hunter killed birds. Sample sizes were small and in some ecozones too small to make accurate comparisons. Although the number of juveniles per adult increased by 10 per cent over the 1957-88 average provincially, the Farmland ecozone showed a decrease of 22 per cent compared to the long-term.

Table 97. Hungarian partridge reproductive index (juveniles/adult), 1957-89 (based on wing samples from harvest).

Year	Ecozone			Province
	Grassland	Farmland	Parkland	
1957				3.65
1958				2.76
1959				3.43
1560	2.07	2.98	5.61	2.79
1961	2.81	2.86	3.96	3.06
1962	7.36	4.19	5.29	5.29
1963	3.38	2.93	5.35	3.44
1964	2.33	3.97	3.41	3.08
1965	2.05	2.11	2.74	2.03
1966			2.17	
1967				2.39
1968				2.23
1969				3.09
1970				2.74
1971				3.81
1972				4.06
1973				4.80
1974				3.49
1975	2.85	4.58	2.33[a]	3.74
1976	1.69	3.70	3.50[a]	2.56
1977	4.23	2.57	2.00[a]	2.79
1978	2.77	2.95	5.00[a]	2.97
1979	2.18[a]	4.42	2.57	3.92
1980	2.24	3.17	5.33[a]	3.11
1981	1.38	1.51	1.54[a]	1.50
1982	5.00	2.86	3.50[a]	2.99
1983	2.38	3.46	6.00[a]	3.21
1984	2.13	3.42	3.10	2.67
1985	3.40	3.88	3.67[a]	3.60
1986	5.07	5.70	6.40[a]	5.50
1987	3.66	2.73	5.44	3.10
1988	0.67	0.94	0.72[a]	0.77
1957-88 Average	2.98	3.25	3.87	3.12
1989	8.00[a]	2.52	6.00	3.42
% Change				
1989 from 1988	N/A[b]	+168.1	N/A[b]	+344.2
1989 from Average	N/A[b]	-22.5%	N/A[b]	+9.6

[a]Sample less than 50 wings.
[b]Sample size too small to make comparison.

- In a brood survey of WMZ 1 and 4 conducted by Wiltse and Haughian (88-WPM-14) in August, 1988 data showed a mean brood size of 7.3 (excluding adults) with broods varying in size from 2 to 14 birds. Hunt (1974) reported average broods of 11.5 and 13.3 upon fledging at Conquest, while Melinchuk (1981) found the mean August brood count to be 16.0 at Eyebrow. Observations of 26 broods of Hungarian partridge in August, 1989 showed the mean brood size to be 9.6 birds. These broods were observed at various locations within the Grassland and Farmland ecozones and varied in size from 2 to 19 birds.

2. 1990 Breeding Population Status

- The survey effort was reduced significantly for Hungarian partridge in 1990. In 1990, 76 farmsteads were surveyed compared to 436 in 1989 (Table 90).

- The 1990 provincial index was 20 per cent lower than 1989 based on comparable surveys but the average of 0.91 pairs per farmstead is approaching the 1987 index of 1.03, the year when Saskatchewan had its highest recorded harvest of Hungarian partridge (Figure 46). The Grassland breeding population index of 0.91 pairs per farmstead was 32 per cent lower than the index of 1.34 observed in 1989 but still remained at the provincial level. The 1990 Farmland ecozone index of 0.90 was slightly higher than the 1989 index of 0.76.

Table 98. Hungarian partridge breeding population surveys, spring 1990.

Wildlife Management Zone	1989 Pairs/Farmstead	1989 Number of Farmsteads Surveyed	1990 Pairs/Farmstead	1990 Number of Farmsteads Surveyed
2 + 5	1.50	68	0.94	18
9	1.00	13	1.00	13
10	1.04	21	0.81	16
Grassland	1.34	102	0.91	47
				Difference[a]: -32.1%
15	0.84	19	0.68	19
23	0.72	36	1.30	10
Farmland	0.76	55	0.90	29
				Difference: +18.4%
Province	1.14	157	0.91	76
				Difference: -20.2%

[a]Based on comparable surveys

C. 1990 MANAGEMENT OBJECTIVES

- Hungarian partridge have the greatest reproductive capability of any Saskatchewan game bird. Minimum average clutch sizes are reported to be 15.6 eggs with mean hatching successes of 92 per cent for this species. They are persistent re-nesters and some pairs will re-nest as late as August (Figure 40). As a result, partridge typically show higher rates of reproduction than other Saskatchewan upland bird species (Figure 38). With the exception of 1987 and 1988, reproduction in 1989 was above normal levels.

- The 1990 outlook for Hungarian partridge recruitment and hunting opportunity is promising. Breeding population levels are approaching 1987 figures and favourable spring weather conditions should enhance high-incubation rates and vegetation growth, resulting in high brood survival and populations. These indicators dictate an excellent year for Hungarian partridge hunters. Liberal bag limits and long seasons are proposed again for 1990.

D. 1990 HUNGARIAN PARTRIDGE SEASON

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Hungarian Partridge	Zones 1 to 8, 15 to 19, 22 to 24, 29 and 31; starting Oct. 3, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; starting Oct. 31, Elbow Wildlife Management Unit	Sept 19 - Nov 17	10 daily 20 possession
	Zones 20, 21, 30, and 32 to 41, including Last Mountain Lake Wildlife Management Unit	Sept 19 - Nov 17	5 daily 10 possession
	Zones 42 to 55, including Fort a la Corne Wildlife Management Unit	Sept 19 - Nov 17	3 daily 6 possession
Hungarian Partridge (Sask. Residents and Canadian Residents Only)	Zones 9 to 14	Sept. 19 - Nov. 17	10 daily 20 possession
	Zones 25 to 28	Sept. 19 - Nov. 17	5 daily 10 possession
Hungarian Partridge (Sask. Residents Only)	Zones 1 to 19, 24 and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units	Dec 3 - Dec 22	10 daily 20 possession

PHEASANT

A. REVIEW OF 1989 HUNTING SEASON

- A total of 4,050 hunters participated in the 1989 pheasant season compared to 4,941 in 1988 (Table 99, Figure 47). Although this is a 17 per cent decrease in the number of active hunters, harvested was reduced only 7 per cent from the previous year, to 10,378 from 11,160. Active hunters and harvest were 13 per cent below the long-term average.

Table 99. Pheasant hunting data for Saskatchewan, 1976-89[a].

Year	Active Pheasant Hunters	Pheasant Hunter Days	Pheasant Hunter Days/ Active Hunter	Pheasant Harvest	Pheasants Harvested/ Active Pheasant Hunter	Pheasants Harvested/ Pheasant Hunter Day
1976	4,619	7,421	1.6	14,488	3.1	1.95
1977	5,726	9,718	1.7	19,097	3.3	2.05
1978	4,476	6,107	1.4	10,165	2.3	1.66
1979	3,441	4,390	1.3	7,060	2.1	1.61
1980	4,150	5,876	1.4	11,823	2.8	2.01
1981	4,825	7,052	1.5	12,536	2.6	1.78
1982	3,915	5,772	1.5	7,511	1.9	1.30
1983	6,348	9,313	1.5	15,857	2.5	1.70
1984	4,975	4,870	1.0	12,182	2.4	2.50
1985	3,704	3,325	0.9	7,084	1.9	2.13
1986	4,767	4,991	1.0	10,557	2.2	2.12
1987	5,523	7,178	1.3	16,439	3.0	2.29
1988	4,941	5,170	1.0	11,160	2.3	2.16
1976-1988 Average	4,724	6,244	1.3	11,997	2.5	1.92
1989	4,098			10,378	2.5	
% Change						
1989 from 1988	-17.1%			-7.0%	+8.6%	
1989 from Average	-13.2%			-13.5%	No Change	

[a]Includes only WMZ 1 to 36 (1984-1989) as these are only zones in which a pheasant season is currently held.

- Harvest during the first week of the season accounted for one-third of the total harvest (Figure 48). Only 8 per cent of the total harvest was taken in the three week late season in December.

- WMZ 15 and 4 continued to provide the greatest amount of recreation and harvest totalling 50 per cent of the provincial harvest (Table 100). The combination of Zones 15, 4, 2 and 5 comprised 66 per cent of the provincial harvest compared to 86 per cent in 1988.

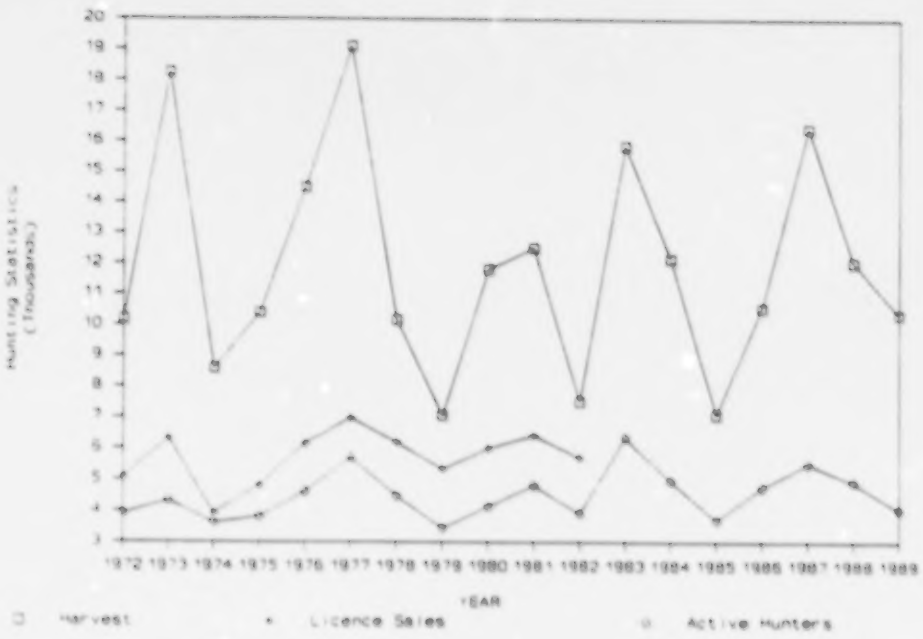


Figure 47. Saskatchewan pheasant licence sales, active hunters and harvest, 1972-89.

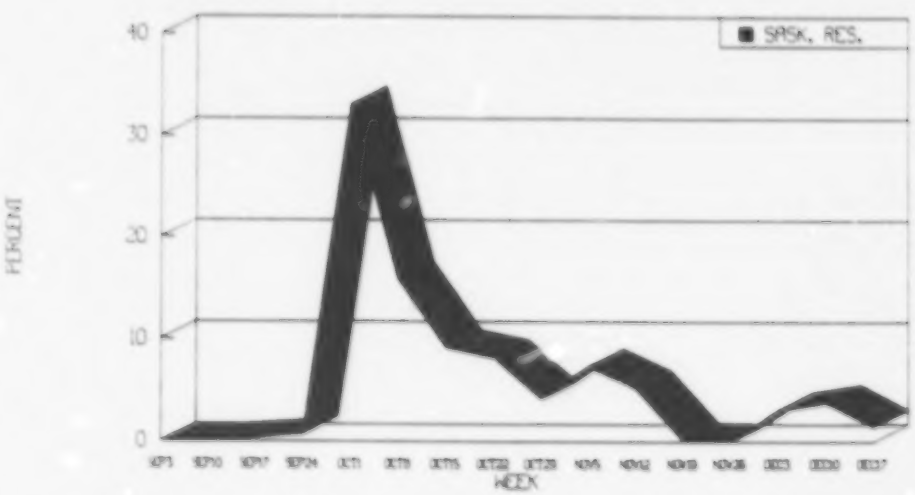


Figure 48. Saskatchewan 1989 pheasant harvest by residency and weekly intervals.

Table 100. Four important pheasant hunting zones in Saskatchewan, 1986-89[a].

	Zone 4			Zone 2			Zone 5			Zone 15			Total (4 Zones)			Province		
	1987	1988	1989	1987	1988	1989	1987	1988	1989	1987	1988	1989	1987	1988	1989	1987	1988	1989
Harvest (% of Total)	4,536 27.6%	1,965 17.6%	1,761 17.0%	2,704 16.5%	1,869 16.8%	1,130 11.0%	2,391 14.6%	1,162 10.4%	617 5.9%	3,829 23.3%	4,579 41.1%	3,299 31.8%	13,460 82.0%	9,575 85.9%	6,821 65.7%	16,419 100.0%	11,146 100.0%	10,378 100.0%
Harvest Pressure (kill/sq km)	.56	.24	.22	.25	.18	.11	.40	.20	.10	.57	.68	.49	.43	.30	.22	.09	.06	.05
Pheasant Hunter Days (% of Total)	1,938 27.0%	985 19.0%		1,149 16.0%	848 16.4%		970 13.5%	566 11.0%		1,091 23.6%	1,963 38.0%		5,748 80.2%	4,362 84.5%		7,166 100.0%	5,161 100.0%	
Hunting Pressure (Pheasant hunter days/ sq km)	.24	.12		.11	.08		.16	.09		.25	.29		.18	.28		.04	.03	
Hunter Success (kill/pheasant hunter day)	2.34	2.15		2.35	2.20		2.46	2.05		2.28	2.33		2.34	2.20		2.29	2.16	

[a]Includes only Zones 1-36 as these are only ones in which a pheasant hunting season is held.

B. POPULATION STATUS

- A mild 1989-90 winter throughout the pheasant range is believed responsible for low mortality and increased spring breeding populations. The provincial breeding index for pheasants increased to 4.64 from 2.74 in 1988 (Tables 101 and 102, Figure 49). Comparisons to historical data show the 1989 reproductive index to be higher than indices reported since 1964; 1987 and 1988 excluded.

Table 101. Spring brooding surveys of ring-necked pheasant crows per survey stop, 1961-90.

Year	Grassland	Farmland	Provincial	Year	Grassland	Farmland	Provincial
1990	4.90	3.25	4.64	1975	3.11	1.23	1.82
1989	3.00	1.37	2.74	1974	2.57	0.84	1.43
1988	5.25	5.60	5.33	1973	4.48	3.17	3.83
1987	5.30	3.28	4.86	1972	4.01	2.14	2.72
1986	1.81	1.60	1.78	1971	3.58	2.52	2.43
1985	1.93	1.48	1.82	1970	4.40	2.03	2.48
1984	2.80	2.37	2.65	1969	3.72	1.18	2.70
1983	6.90	1.40	3.60	1968	3.48	1.67	2.70
1982	3.00	1.60	2.20	1967	3.66	1.97	3.13
1981	4.00	3.20	3.50	1966	5.10	0.85	4.25
1980	4.88	3.12	3.68	1965	2.27	1.30	1.95
1979	2.54	1.45	1.89	1964	7.43	3.05	6.88
1978	2.99	1.34	2.00	1963	6.11	1.72	5.23
1977	4.62	1.83	2.91	1962	4.57	0.80	4.30
1976	3.49	1.53	2.05	1961	6.50	—	6.50

Table 102. Cock pheasant breeding population surveys, spring 1990.

Wildlife Management Zone	Survey Route	Pheasant Crows Heard/Survey Stop				
		1986	1987	1988	1989	1990
2	Val Marie	2.75	8.60	8.30	5.35	7.50
4	Woodrow Southwest	1.40	5.80	12.05	3.05	5.30
4	Bateman - Coderre	1.15	6.65	2.60	2.35	4.70
5	Swift Current - Duncairn	1.95	3.25	3.80	1.55	3.25
6	Eastend	1.06	3.73	4.73	5.28	3.46
8	Maple Creek North	1.80	3.13	3.13	3.73	4.60
Grassland		1.81	5.30	5.25	3.00	4.90
					Difference[a]:	+42.6%
15	Radville East	1.90	4.20	4.70	1.40	3.25
					Difference:	+132.1%
Province		1.78	4.86	5.33	2.74	4.64
					Difference:	+48.9 %

[a]Per cent difference in 1990 male pheasant crow calls compared to 1989; based on comparable survey routes.

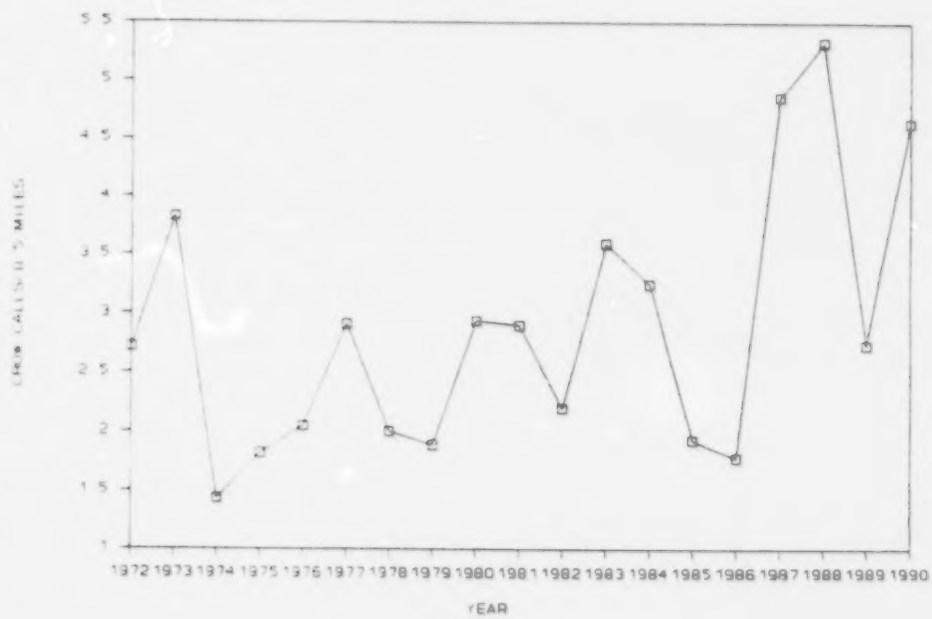


Figure 49. Saskatchewan pheasant spring breeding population index, 1972-90.

C. 1990 MANAGEMENT OBJECTIVES

- The forecast for the 1990 pheasant season looks good. The relatively mild winter left breeding populations higher during most of the 70's and 80's. Favourable spring weather should enhance production and population growth. Season structure will remain the same as 1989 with the retention of the Wednesday opening and the closure of the season over the opening of the regular white-tailed deer season.

D. 1990 PHEASANT SEASON

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Pheasants (Sask. Residents Only May Hunt Cocks Only)	Zones 1 to 36, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Management Units	Oct 3 - Nov 17	3 cocks daily 6 cocks possession
	WMZ 1 to 20, 24, and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units	Dec 3 - Dec 22	3 cocks daily 6 cocks possession

RUFFED GROUSE

A. REVIEW OF 1989 HUNTING SEASON

- The 1989 harvest of 70,781 ruffed grouse was 19 per cent lower than the 87,065 taken in 1988, but remained 40 per cent higher than the 1972 to 1988 average (Tables 90 and 103). The number of active hunters decreased by 7 per cent compared to 1988, but was similar to the long-term average. The average harvest per active ruffed grouse hunter decreased to 5.8 from 6.7 in 1988, but exceeded the long-term average by 38 per cent.

Table 103. Ruffed grouse hunting data for Saskatchewan, 1972-89.

Year	Hunting Level		Hunting Success
	Active Ruffed Grouse Hunters	Ruffed Grouse Harvest	Ruffed Grouse Harvested/Active Ruffed Grouse Hunter
1972	11,057	29,853	2.7
1973	9,102	12,743	1.4
1974[a]	7,477	14,205	1.9
1975[a]	12,091	36,274	3.0
1976[a]	14,782	83,805	5.7
1977[a]	17,757	94,353	5.3
1978	17,042	94,203	5.5
1979	17,545	86,309	4.9
1980	18,363	91,514	5.0
1981	14,466	36,711	2.5
1982	10,215	16,886	1.7
1983	8,754	13,523	1.5
1984	6,706	12,974	1.9
1985	6,427	15,074	2.3
1986	10,147	47,978	4.7
1987	11,170	89,322	8.0
1988	13,012	87,065	6.7
1972-1988 Average	12,124	50,751	4.2
1989	12,180	70,781	5.8
% Change			
1989 from 1988	-6.4%	-18.7%	-13.4%
1989 from Average	+0.5%	+39.5%	+38.1%

[a]Data published for these years were inaccurate.

- Harvest decreased in all ecozones but was most notable in the Forest Fringe and Forest zones (Table 104). These two ecozones are responsible for approximately 67 per cent of the provincial harvest. Harvest was the highest during the first week of October, with 21 per cent of the provincial harvest (Figure 50). This week coincided with the opening of the early regular moose season in the northern zones.

Table 104. Ruffed Grouse hunting data for Saskatchewan by ecozone, 1989 vs 1988.

	Farmland		%	Parkland		%	Forest Fringe		%
	1988	1989	Change	1988	1989	Change	1988	1989	Change
Harvest	2,725	2,487	-8.7	25,354	22,887	-9.7	21,824	14,586	-33.2
Percent of Provincial Harvest	3.1	3.5		29.1	32.4		25.1	20.6	
Active Hunters per WMZ	1,743	1,762	+1.1	5,933	5,652	-4.7	3,986	3,276	-17.8
Hunter Days	1,015			14,963			6,893		
Hunter Success (Kill/Hunter Day)	2.7			1.7			3.2		

	Forest		%	Province		%
	1988	1989	Change	1988	1989	Change
Harvest	36,427	28,837	-20.8	87,065	70,781	-18.7
Per cent of Provincial Harvest	41.8	40.9		100.0	100.0	
Active Hunters per WMZ	6,570	5,334	-18.8	13,012	12,180	-6.4
Hunter Days	13,076			20,459	27,450	
Hunter Success (Kill/Hunter Day)	2.8			4.2		

B. POPULATION STATUS

1. 1989 Reproduction

- The 1989 provincial reproduction index was determined to be 3.97 juveniles per adult based on a sample of wings from hunter killed birds (Table 105). This index is 36 per cent higher than 1988 and 49 per cent higher than the long-term average. The Forest Fringe ecozone showed similar reproduction to 1988 and the 10 year average. The cyclic nature of the ruffed grouse dictates a decline in bird numbers for 1990 (Figure 51).

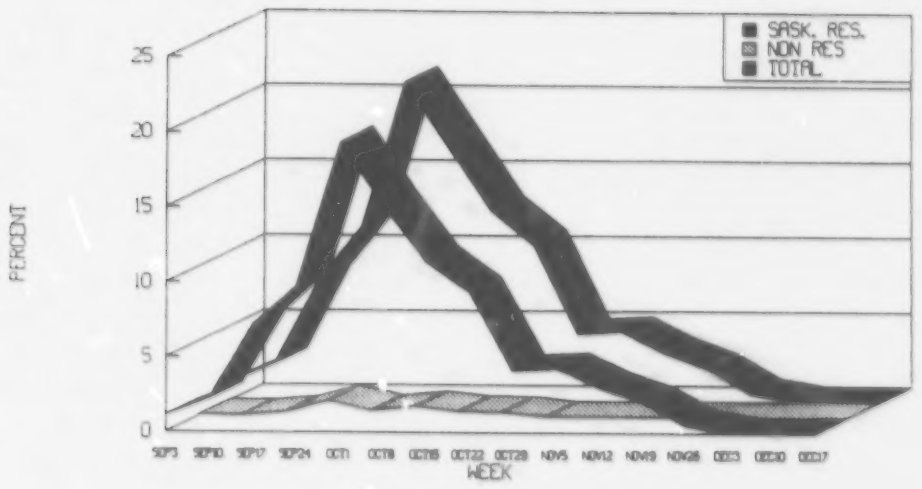


Figure 50. Saskatchewan 1989 ruffed grouse harvest by residency and weekly intervals.

Table 105. Ruffed grouse reproductive index (juveniles/adult), 1979-89 (based on wing samples from harvest).

Year	Farmland	Parkland	Forest Fringe (WMZ 48-55)	Forest	Province
1979	1.96	2.21	N/A	3.00	2.43
1980	1.03	1.39	N/A	1.84	1.41
1981	1.19	3.12	N/A	2.77	2.30
1982	1.23[a]	2.43	N/A	3.80[a]	2.28
1983	1.14[a]	2.29	N/A	4.80	2.51
1984	1.90[a]	1.75	3.17[a]	1.93	1.97
1985	1.11[a]	3.62	3.24	3.77	3.45
1986	3.08[a]	4.27	3.00	3.22	3.37
1987	0.60[a]	3.92	3.28	4.37	4.02
1988	5.00[a]	2.35	3.50	3.14	2.93
1979-1988 Average	---	2.74	3.24[b]	3.26	2.67
1989	---	4.00	3.46	4.16	3.97
% Change					
1989 from 1988	---	+70.2%	-1.1%	+32.5%	+35.5%
1989 from Average	---	+45.0%	+6.8%	+27.6%	+48.7%

[a]Sample size less than 50 wings.
[b]1984-89 average.

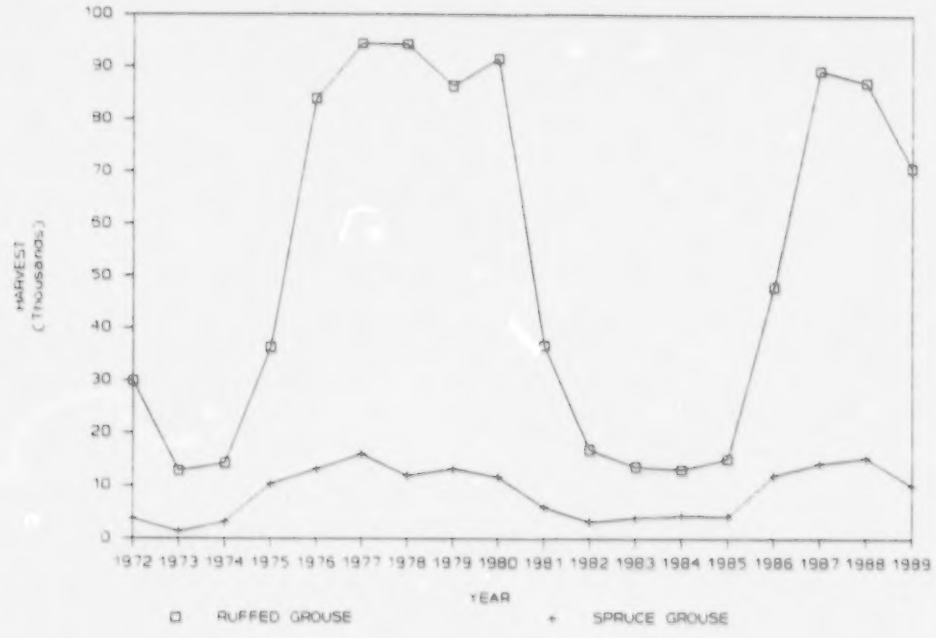


Figure 51. Saskatchewan ruffed and spruce grouse harvest 1972-89.

C. 1990 MANAGEMENT OBJECTIVES

- The significant reduction in harvest is an indicator that the ruffed grouse is entering the downward trend in their apparent cycle and although reproduction was good, bird numbers should continue to decline. Hunting does not seem to impact this cycle and season dates and bag limits will remain similar to last year. The opening date of September 10 in the Forest Fringe and Forest ecozones coincides with the opening of the early special moose season, and the September 19 date in the south is the same as the opening date for sharp-tailed grouse and Hungarian partridge.

D. 1990 RUFFED GROUSE SEASON

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Ruffed Grouse (All Hunters)	Zones 1 to 47, including Last Mountain Lake Wildlife Management Unit, Duck Mountain and Moose Mountain Provincial Parks	Sept. 19 - Nov. 17	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Greenwater Lake, Lac la Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; Bronson Forest Recreation Site	Sept. 10 - Dec. 1	10 daily 20 possession

SPRUCE GROUSE

A. REVIEW OF 1989 HUNTING SEASON

- The 1989 harvest of 10,378 spruce grouse was 32 per cent lower than the 15,332 taken in 1988. Sixty-five per cent of the active hunters were successful and each hunter took an average of 4.3 birds (Table 90). Harvest trends for spruce grouse tend to follow the ruffed grouse which suggests spruce grouse are cyclic also (Figure 51). Peak harvest occurred during the first week of October similar to ruffed grouse (Figure 52).

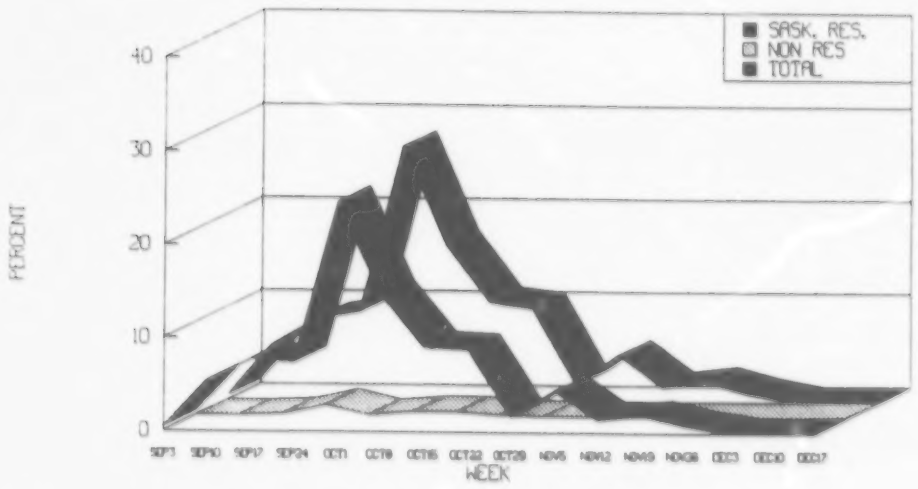


Figure 52. Saskatchewan 1989 spruce grouse harvest by residency and weekly intervals.

B. 1990 MANAGEMENT OBJECTIVES

- Most spruce grouse are taken casually by ruffed grouse hunters. To simplify regulation season dates and bag limits will be the same as ruffed grouse. WMZ 43 will be the only Forest Fringe zone open for spruce grouse.

C. 1990 SPRUCE GROUSE SEASON

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Spruce Grouse (All Hunters)	Zone 43	Sept. 19 - Nov. 17	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Lac la Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; Bronson Forest Recreation Site	Sept. 10 - Dec. 1	10 daily 20 possession

PTARMIGAN

A. REVIEW OF 1989 HUNTING SEASON

- The 1989 harvest of 301 ptarmigan was double that of 1988 (Table 90). Sport harvest is traditionally low and the number of birds harvested is dependant upon their migration and accessibility to hunters. Based on the timing of the reported harvest, many birds are believed to be taken by big game hunters and trappers (Figure 53).

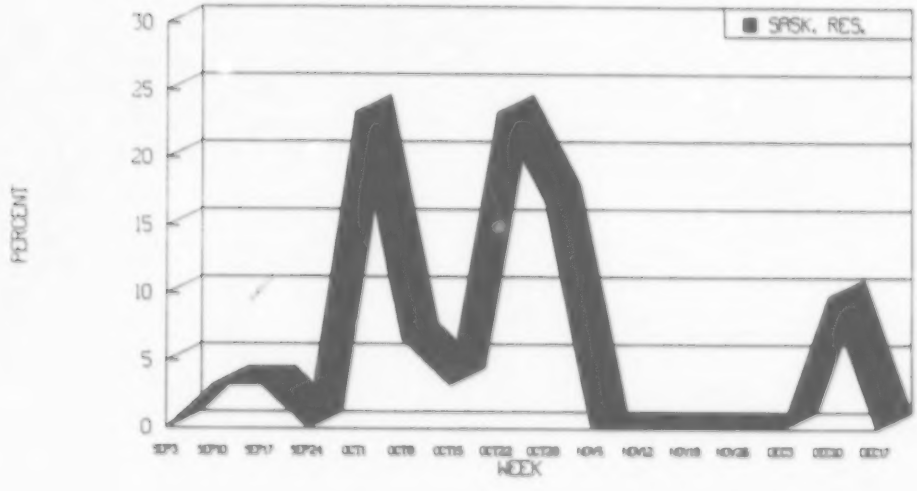


Figure 53. Saskatchewan 1989 ptarmigan harvest by weekly interval.

B. 1990 PTARMIGAN SEASON

Species	Wildlife Management Zones Open	Season Dates	Bag Limit
Ptarmigan (All Hunters)	WMZ 61-66, 69-76, including Clearwater River and Lac la Ronge Provincial Park	Nov. 12, 1990 to Mar. 30, 1991	10 daily 20 possession

Appendix 1. 1989 big game hunting season regulations.

1989 Big Game Seasons

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
White-tailed Deer Primitive Weapons (Sask. Residents Only)	Zones 1 to 55, including Brokenshell No. 1 and No. 2, Elbow, Fort a la Corne, Great Bend and Horsehide Lake Wildlife Management Units; and Duck Mountain, Moose Mountain and Saskatchewan Landing Provincial Parks	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Oct. 2 - Oct. 14	one white-tailed deer, either sex	• An unsuccessful archer or muzzleloader hunter may use his unfilled either-sex white-tailed deer licence in all white-tailed deer rifle seasons and the Shotgun-Archery-Muzzleloader areas of Zones 20 and 30. • **Note: Special conditions apply to primitive weapons hunting in Brokenshell No. 1 and No. 2 and Elbow Wildlife Management Units (see page 27 for details).**
	Zone 2, 6, that portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta border and that portion of Zones 31 and 32 south of Highway No. 361 and east of Highway No. 9	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Oct. 2 - Oct. 14	one antlerless white-tailed deer	• Archery or muzzleloader hunters may purchase an additional antlerless white-tailed deer licence at department offices, valid only in Zones 2 and 6, and the specified portions of Zones 11 and 14, 31 and 32, during the archery and muzzleloader seasons. See map for details. • Second white-tailed deer either-sex licences are valid only in Zones 56 to 69 and the specified portions of Zones 31 and 32 during the Dec. 4 to Dec. 9 antlerless season. A separate licence is required. • **Note: The opening date in Duck Mountain, Moose Mountain, Greenwater Lake, Meadow Lake and Saskatchewan Landing Provincial Parks and Bronson Forest Recreation Site is delayed until September 6.**
	Zones 56 to 69, including Leaf Lake Wildlife Management Unit; Greenwater Lake, Meadow Lake and Nipawin Provincial Parks; and Bronson Forest Recreation Site	Archery Sept. 4 - Oct. 14 Muzzleloading Rifles Sept. 18 - Oct. 14	two white-tailed deer, either sex	
	Zones 70 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Archery and Muzzleloading Rifles Aug. 28 - Oct. 14	one white-tailed deer, either sex	
White-tailed Deer Archery (Canadian Residents and Non-residents)	Zones 56 to 76, including Leaf Lake Wildlife Management Unit; Clearwater River, Greenwater Lake, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; and Bronson Forest Recreation Site	Sept. 4 - Oct. 14	one white-tailed deer, either sex	• An unsuccessful archer may use his unfilled either-sex white-tailed deer licence in all white-tailed deer seasons open to Canadian Residents and Non-residents. • **Note: The opening date in Greenwater Lake and Meadow Lake Provincial Parks and Bronson Forest Recreation Site is delayed until September 6.** • **Non-residents of Canada must use the services of a registered guide or licensed outfitter.**
White-tailed Deer (Sask. Residents Only)	Zones 16, 17, 31 to 35, and 37 to 39, including Duck Mountain and Moose Mountain Provincial Parks	Nov. 20 - Dec. 2	one white-tailed deer, either sex	• "**Roads and Trails Only**": Hunters in Zones 16 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails. • "Antlerless White-tailed Deer" means a doe or 1989 fawn.
	That portion of Zones 31 and 32 south of Highway No. 361 and east of Highway No. 9	Dec. 4 - Dec. 9	one antlerless white-tailed deer	• Hunters may purchase a separate antlerless white-tailed deer licence or use their unfilled 1st or 2nd either-sex white-tailed deer licences to harvest an antlerless white-tailed deer in the specified portions of Zones 31 and 32.
	Zones 2, 6 and that portion of Zones 11 and 14 along the South Saskatchewan River from Highway No. 21 to the Alberta Border (Zones 2, 6, 11 and 14 either sex and antlerless mule deer licence holders only)	Specified mule deer seasons between Nov. 6 and Nov. 16 inclusive	one antlerless white-tailed deer	• In Zones 2, 6 and the specified portion of Zones 11 and 14, either-sex and antlerless mule deer licence holders may purchase an additional antlerless white-tailed deer licence at department offices upon proof of possession of a mule deer licence for Zones 2, 6, 11 and 14 only.
White-tailed Deer (Sask. Residents and Canadian Residents)	Zones 1 to 15, 18 to 30, 36 and 40 to 55, including Brokenshell No. 1 and No. 2, Cooleson, Esteven-Cambria, Elbow, Fort a la Corne, Horseheide Lake, Last Mountain Lake and Lamond (Lamond No. 3 pasture at Maxim) Wildlife Management Units; and Saskatchewan Landing Provincial Park	Sask. Residents Nov. 20 - Dec. 2 Canadian Residents Nov. 27 - Dec. 2	one white-tailed deer, either sex	**Note: Primitive weapons only in Saskatchewan Landing Provincial Park.** • **Portions of Zones 20 and 30 are restricted to shotgun, archery, and muzzleloading rifle hunting only. Please refer to Wildlife Management Zone maps.** • **Hunters will be restricted to designated trails within the Cooleson and Elbow Wildlife Management Units.** • "**Roads and Trails Only**": Hunters in Zones 16 to 17, 20 and 30 to 34 must keep vehicles on roads and road allowances with trails.

Appendix I. (con't).

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
White-tailed Deer (Sask. Residents, Canadian Residents and Non-residents)	Zones 56 to 61, 65, 66 and 69, including Leaf Lake Wildlife Management Unit; and Greenwater Lake, Meadow Lake and Nipawin Provincial Parks, including those portions of Nipawin Provincial Park in WMZ 63 and 64	Oct. 2 - Oct. 14 & Nov. 6 - Dec. 2	two white-tailed deer, either sex	• Second white-tailed deer licences are valid only in Zones 56 to 69 (all hunters) and for Saskatchewan Residents only in the specified portions of Zones 31 and 32 during the Dec. 4 to Dec. 9 antlerless season. • **Persons possessing a guided moose licence may also purchase a white-tailed deer licence and hunt during the moose season dates (see Guided Moose).** • **Non-residents of Canada must use the services of a registered guide or licensed outfitter.**
	Zones 62 to 64, 67 and 68, including Nipawin Provincial Park and Bronson Forest Recreation Site	Nov. 6 - Dec. 2	two white-tailed deer, either sex	
	Zones 70 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Aug. 26 - Dec. 2	one white-tailed deer, either sex	
Regular Elk (Sask. Residents Only)	Zones 48, 49, 50 (north of Highway 55), 56 to 64, 66 and 69, including Leaf Lake Wildlife Management Unit and the northeast portion of Meadow Lake Provincial Park north of the 17th base line	Sept. 18 - Sept. 30	one antlered elk	• "Antlered Elk" means any elk having an antler or antlers at least 15 centimeters in length as measured from the outside of the skull to the tip. • Successful applicants for a special elk licence are not eligible to purchase a regular elk licence. • **Note: Watch for signs in Meadow Lake Provincial Park.** • **Note: Hunters will be restricted to designated trails within the Cookson Wildlife Management Unit.**
	Zone 53, including Cookson Wildlife Management Unit	Nov. 20 - Dec. 9	one elk, either sex	
	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26 and Zone 68, combined including Bronson Forest Recreation Site	Sept. 18 - Sept. 30	one antlered elk	
Archery Moose (Sask. Residents Only)	Zones 55 and 68 combined, including Bronson Forest Recreation Site	Sept. 18 - Sept. 30	one moose, either sex	• A regular bull-calf moose licence can be used to harvest any moose by means of a bow during the archery season dates. Unfilled licenses can also be used during the regular moose season but only to harvest a bull or 1989 calf moose.
Regular Moose (Sask. Residents only)	Zones 43, 48, 49, 53, 56 to 67 and 69, including Cookson and Leaf Lake Wildlife Management Units, and Nipawin Provincial Park	Oct. 2 - Oct. 7	one bull or one 1989 calf moose	• "Bull Moose" means a male moose one or more years old. "Calf Moose" means any moose born in 1989. "Cow Moose" means a female moose one or more years old. • Successful applicants for a special moose licence are not eligible to purchase a regular moose licence. • The antlers of bull moose and the lower jaw of calf moose must accompany the carcass.
Early Season	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Sept. 11 - Sept. 23	one bull or one 1989 calf moose	
	Zones 74, 75 and 76	Aug. 26 - Oct. 7	one bull or one 1989 calf moose	
Late Season	Zones 43, 48, 49 and 56 to 59, including Leaf Lake Wildlife Management Unit	Nov. 20 - Dec. 2	one bull or one 1989 calf moose	
	That portion of Zone 47 north of Highway No. 3 and west of Highway No. 26, and Zones 53, 55 and 60 to 69, including Cookson Wildlife Management Unit; Nipawin Provincial Park; and Bronson Forest Recreation Site	Nov. 20 - Nov. 25	one bull or one 1989 calf moose	
	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Oct. 2 - Dec. 2	one bull or one 1989 calf moose	
Guided Moose (Canadian Residents and Non-residents)	Zones 60, 61 and 62	Oct. 2 - Oct. 21 & Nov. 6 - Nov. 25	one bull or one 1989 calf moose	• **Persons possessing a guided moose licence may also purchase a white-tailed deer licence and hunt during the moose season dates.** • **Services of a registered guide must be used for both species.** • The antlers of bull moose and the lower jaw of calf moose must accompany the carcass. • 400 Guided Moose Licences are available directly from outfitters. Quotas (in brackets) for each zone: 60(60), 61(100), 62(15), 69(15), 70(15), 71(45), 72(45), 73(10), 74(45), 75(10), 76(30).
	Zone 69	Sept. 4 - Sept. 16, Oct. 2 - Oct. 7 & Nov. 13 - Nov. 16	one bull or one 1989 calf moose	
	Zones 70 to 73, including Clearwater River and Lac La Ronge Provincial Parks	Aug. 26 - Sept. 16, Oct. 2 - Oct. 7 & Nov. 6 - Nov. 25	one bull or one 1989 calf moose	
	Zones 74 to 76	Aug. 26 - Oct. 7	one bull or one 1989 calf moose	
Barren-ground Caribou (Sask. Residents of Zone 76 Only)	Zone 76	Nov. 20 - Mar. 31, 1990	two barren-ground caribou, either sex, separate licences required	• "Resident of Zone 76" means a Saskatchewan resident who has lived in Zone 76 for three months immediately preceding the date of licence purchase.
Bear (Sask. Residents, Canadian Residents and Non-residents)	Zones 37, 42, 43 and 48 to 76, including Cookson, Horseride Lake and Leaf Lake Wildlife Management Units	Aug. 26 - Oct. 14	one bear, either sex	• Unused spring bear licences are valid in the fall season. • **Non-residents of Canada must use the services of a registered guide or licensed outfitter.**
	Clearwater River, Lac La Ronge, Meadow Lake, Nipawin and Duck Mountain Provincial Parks; and Bronson Forest Recreation Site	Sept. 6 - Oct. 14	one bear, either sex;	
	Fort a la Corne Wildlife Management Unit only	Sept. 25 - Oct. 14	one bear, either sex;	

Appendix I. (con't).

1989 Special Big Game Seasons

Saskatchewan Residents Only By Application and Draw

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Antelope	Zones 1, 2, 4 to 6, 8 to 13, 19 and 23 to 26	Oct. 28 - Nov. 16	one antelope, either sex	• Antelope licence quotas will be set after June aerial surveys. Note: Oct. 23-28, inclusive, a muzzleloading rifle only may be used in Zones 7 and 14. • Primitive weapons only in Saskatchewan Landing Provincial Park. • During the muzzleloading rifle season only, hunters may wear camouflage clothing.
	Zones 7 and 14 including Saskatchewan Landing Provincial Park	Oct. 23 - Nov. 16	one antelope, either sex	
	Zone 3	Oct. 30 - Nov. 16	one antelope, either sex	
Antelope (Archery)	Zones 1 to 15, 18, 19 and 23 to 26, including Saskatchewan Landing Provincial Park	Sept. 4 - Oct. 14	one antelope, either sex	• antelope archery licences are valid in any open zone during the archery season only. Note: The opening date in Saskatchewan Landing Provincial Park is delayed until Sept. 6
Special Elk	Zone 6 and that portion of Zone 7 east of Highway No. 271 and Grid Road No. 615	Nov. 6 - Nov. 16	one elk, either sex	• Licence quotas (in brackets) for each zone: 6 and the east portion of 7 combined (50), the west portion of 7(200), 33(100), 43 and 50 combined (100), 46, 48, 58 and 57 combined (400), 54(50), 59 (50), 58(50), 63(50). Note: Some portions of the Meeting and Rapid Lake PFRA pastures in Zone 54 will be closed to elk hunting. Watch for "No Hunting" signs.
	That portion of Zone 7 west of Highway No. 271 and Grid Road No. 615, including Cypress Hills (West Block) Provincial Park	Oct. 23 - Oct. 28 or Oct. 30 - Nov. 4	one elk, either sex	
	Zone 33, including Moose Mountain Provincial Park	Oct. 23 - Oct. 28	one elk, either sex	
	That portion of Zone 43 west of Highway No. 35 and north of Highway No. 335 and that portion of Zone 50 south of Highway No. 55, including Fort a la Corne Wildlife Management Unit	Aug. 28 - Sept. 10	one elk, either sex	
	Zones 48, 49, 58 and 57 combined, including Greenwater Lake Provincial Park; Zones 58, 59, and that portion of Zone 63 south of the Torch River (Nipawin Provincial Park closed.)	Oct. 16 - Oct. 21	one elk, either sex	
	That portion of Zone 64 south of Highway No. 3	Nov. 6 - Nov. 16	one elk, either sex	
Special Moose	Zone 6	Oct. 23 - Oct. 28	one moose, either sex	• Licence quotas (in brackets) for each zone: 6(25), 37(100), 52(100), 46, 49 and 58 combined (300), 57(200), 58(200), 59(400), 60(300), 61(100), 62(50), 67(150), Greenwater Lake Provincial Park (50).
	Zones 48, 49 and 59 combined; and Zones 57 to 62 and 67, including Last Lake Wildlife Management Unit	Sept. 11 - Sept. 16 & Nov. 6 - Nov. 16	one moose, either sex	
	Zone 37, including Duck Mountain Provincial Park	Nov. 6 - Nov. 16	one moose, either sex	
	Greenwater Lake Provincial Park Only	Nov. 6 - Nov. 16	one moose, either sex	
	Zone 50, including Fort a la Corne Wildlife Management Unit	Sept. 11 - Sept. 23 & Nov. 6 - Nov. 16	one moose, either sex	
Special Moose (Archery)	Zone 37, including Duck Mountain Provincial Park	Sept. 16 - Sept. 30	one moose, either sex	• The archery moose licence in Zone 37 is valid only during the archery season. licence quota (50).
Mule Deer	Zones 1, 3 to 6, 11, 16, 18, 23 to 27, 29, 30, 44 and 45, including Brotenshell No. 1 and Elbow Wildlife Management Units; and Cypress Hills (West Block) Provincial Park	Nov. 6 - Nov. 11	one mule deer, either sex	• Licence quotas (in brackets) for each zone: 1(400), 2(750), 3(50), 4(150), 5(200), 6(250), 7(200), 8(50), 9(500), 10(700), 11(150), 12(150), 13(400), 14(600), 16(50), 18(300), 23(250), 24(150), 25(200), 26(150), 27(100), 29(150), 30(150), 44(50), 45(100), 46(250), 47(50) Note: Primitive weapons only in Saskatchewan Landing Provincial Park.
	Zones 46 and 47	Nov. 13 - Nov. 16	one mule deer, either sex	
	Zones 2, 9, 10, and 12 to 14, including Saskatchewan Landing Provincial Park	Nov. 6 - Nov. 8 or Nov. 9 - Nov. 11	one mule deer, either sex	
Antlerless Mule Deer	Zones 1, 2, 4 to 6, 8, 9, 12, 13 (east of Highway No. 4 only) and 19	Nov. 13 - Nov. 16	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1(300), 2(400), 4(150), 5(200), 6(200), 8(100), 9(400), 10(2000), 11(400), 12(200), 13(400), 19(200), 46(75)
	Zones 10 and 11	Nov. 13 - Nov. 15 or Nov. 16 - Nov. 16	one antlerless mule deer	• "Antlerless Mule Deer" means a doe or a fawn.
	Zone 46	Nov. 16 - Nov. 16	one antlerless mule deer	

Appendix 1. (con't).

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Limit	Additional Information
Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, 44 to 47 combined, including Brokenshell No. 1 and No. 2, Elbow and Great Bend Wildlife Management Units; and Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks	Sept. 4 - Oct. 14	one mule deer, either sex	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 18 to 27, 29 to 31, 44 to 47 combined (850), 9(100), 10(100), and 12(25). • Archery licences valid only in the archery season. • **Archery hunting in Provincial Parks is delayed until Sept. 6**
	Zones 9, 10 and 12	Sept. 18 - Sept. 30	one mule deer, either sex	
Antlerless Mule Deer (Archery)	Zones 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined, including Brokenshell No. 1 and No. 2, Elbow Wildlife Management Unit; and Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks	Sept. 4 - Oct. 14	one antlerless, mule deer	• Licence quotas (in brackets) for each zone: 1 to 8, 13 to 15, 18 to 27, 29 to 31, 45 and 46 combined (100), 9(50), and 10(50). • **Archery hunting in Provincial Parks is delayed until Sept. 6.**
	Zones 9 and 10	Sept. 18 - Sept. 30	one antlerless, mule deer	
Mule Deer (Muzzleloading Rifles)	Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 44 to 47 combined, including Elbow and Great Bend Wildlife Management Units; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks; and Zones 9, 10, and 12.	Oct. 2 - Oct. 14	one mule deer, either sex	• Licence quotas (in brackets) for each zone: 1 to 8, 13, 14, 18 to 27, 29, 30, 44 to 47 combined (200), 9(50), 10(100), 12(25). • **Note: Special conditions apply to primitive weapons hunting in Elbow Wildlife Management Unit (see page 27 for details).**
Antlerless Mule Deer (Muzzleloading Rifles)	Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined, including Elbow Wildlife Management Unit; Cypress Hills (West Block) and Saskatchewan Landing Provincial Parks; and Zones 9 and 10.	Oct. 2 - Oct. 14	one antlerless mule deer	• Licence quotas (in brackets) for each zone: 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46 combined (100), 9(50), and 10(50). • **Note: Special conditions apply to primitive weapons hunting in Elbow Wildlife Management Unit (see page 27 for details).**

Appendix 2. 1989 Saskatchewan big game draw information sheet.

Saskatchewan
Parks, Recreation
and Culture

Hon. Colin Maxwell
Minister

1989 Saskatchewan Big Game Draw Information Sheet

(Residents of Saskatchewan Only)

Who's Eligible for the Draw

Only Saskatchewan residents and permanent members of the Armed Forces or RCMP who are stationed and residing in the province may apply.

Applicants must be 16 years of age or over, **on or before May 31,** 1989 to apply. (Exception: In the **Antlerless Mule Deer Draw only, applicants** 12 to 15 years of age **on or before May 31,** 1989 may apply. See Antlerless Mule Deer section for more details).

All applicants 17 years of age and younger and all first time hunters must hold a Firearm or Hunter Safety Certificate before applying.

Persons whose hunting rights are restricted for either a Wildlife Act conviction or a firearm accident as of May 31, 1989 are not eligible to apply.

How to Apply

Applying for the Big Game Draw is not difficult. To enter your application in the draw, the department must know who you are, where you live, what species you wish to hunt and where.

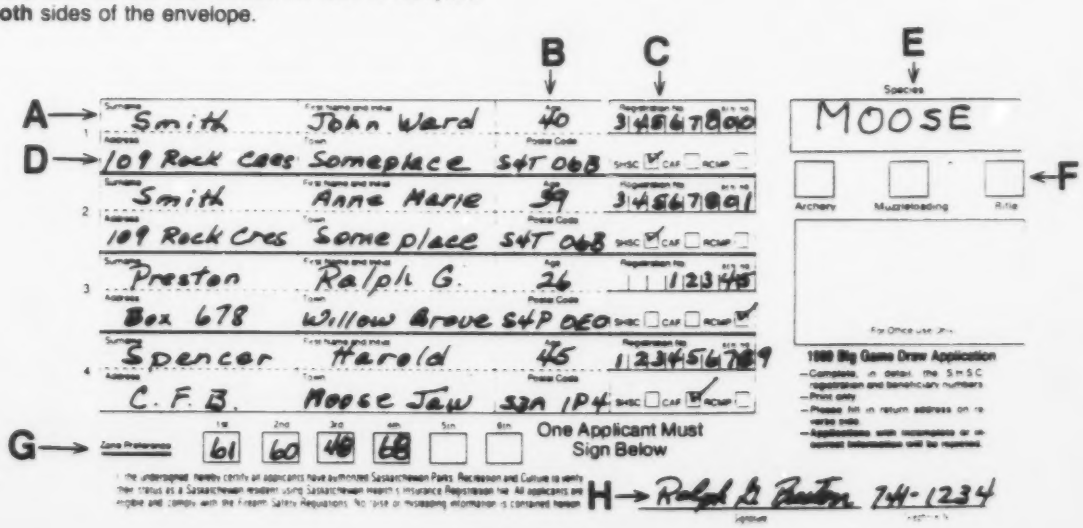
Applications must be received at the Saskatchewan Parks, Recreation and Culture office, 3211 Albert Street, Regina, no later than 5:00 p.m. c.s.t., Wednesday, May 31, 1989 to be eligible. Post office date stamps are not acceptable.

Follow these steps to complete your application. **Double check all** of your information before and after writing it on the application envelope, as applications with incomplete or incorrect information will be rejected.

A. Print your name with your last name first, **exactly** as it appears on your 1989 Saskatchewan Health Services Card. **Do not** use nicknames. Be sure to complete **both** sides of the envelope.

B. Enter your correct age.

C. Enter your full registration and beneficiary number from your 1989 Saskatchewan Health Services Card. **Do not use** Health Region, MSI or GMS card numbers. Print your registration number first **(on the front or colored side of the card, Fig. A on next page),** followed by **your** individual beneficiary number, in this manner: 345678-00. **The beneficiary number (in this case 00) is found on the back or white side of the card (see Fig. B on next page).** Permanent members of the Armed Forces use their Social Insurance Number. RCMP use their Regimental number. **All applicants must mark the appropriate box on the application, indicating the type of number given.**



(Sample Application Illustration)

Appendix 2. (con't).

The most common reason for application rejection is the submission of an incorrect Saskatchewan Health Services Number. Double check all of the SHS numbers on your application as one inaccurate number will result in rejection of the entire application.

Each person on this card has a separate beneficiary number. Use your own beneficiary number (to the left of your name) following your registration number on your application.

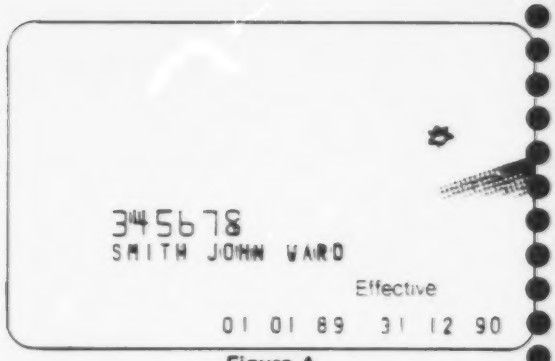


Figure A

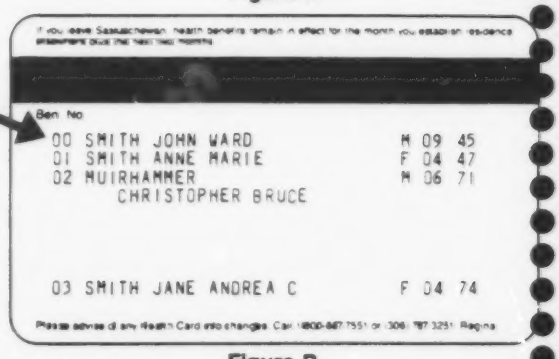

Ben No
00 SMITH JOHN WARD M 09 45
01 SMITH ANNE MARIE F 04 47
02 MUIRHAMMER M 06 71
CHRISTOPHER BRUCE
03 SMITH JANE ANDREA C F 04 74

Figure B

D. Print your current mailing address including the postal code to ensure that your licence is mailed to you as quickly as possible.

E. Print the name of the species you wish to hunt. Separate applications are required for each species. A person may apply only **once** for Moose or Antelope (either archery or rifle - **not both**). Successful applicants for a Special Draw Elk Licence are **not** eligible to purchase a Regular Elk Licence. Successful applicants for a Special Draw Moose Licence are **not** eligible to purchase a Regular Moose licence. Persons interested in Mule Deer may apply for **both** Either-sex Mule Deer and Antlerless Mule Deer. See the Mule Deer sections for more details.

F. Indicate the type of hunt you wish to apply for; either the archery season, the muzzleloading rifle season or the rifle season by placing an X in the appropriate box. **Double check that the type of hunt you wish is offered for the species you are applying for.**

G. Indicate where you wish to hunt by selecting from one to six management zones. List them in order of preference in boxes 1 to 6 by writing in the zone numbers. If your application is selected, the computer will look at your first choice. If the quota for that zone was filled before your application is picked, the computer will select your second choice and so on. Consult the Zone Map in this brochure for zone numbers.

Please note that some zones are grouped for certain species and hunts. A hunter wishing to apply for one zone may find that the zone has been combined with one or more additional zones. A designation zone number which collectively represents **ALL OF THE COMBINED ZONES,** should be entered into **SPACE G OF THE APPLICATION ENVELOPE.** The designation number will be identified in the season chart. eg. A person may wish to hunt Special Elk in Zone 56. Upon checking the season chart under Special Elk they would discover that Zone 56 has been grouped with Zones 48, 49 and 57, including Greenwater Lake Provincial Park. **THE DESIGNATION NUMBER** for the grouped zones is 48. The applicant should place the number 48 in space G on the application.

H. One of the applicants must sign the application to verify it is correct. Include your phone number as we may wish to contact you to clarify information on the application.

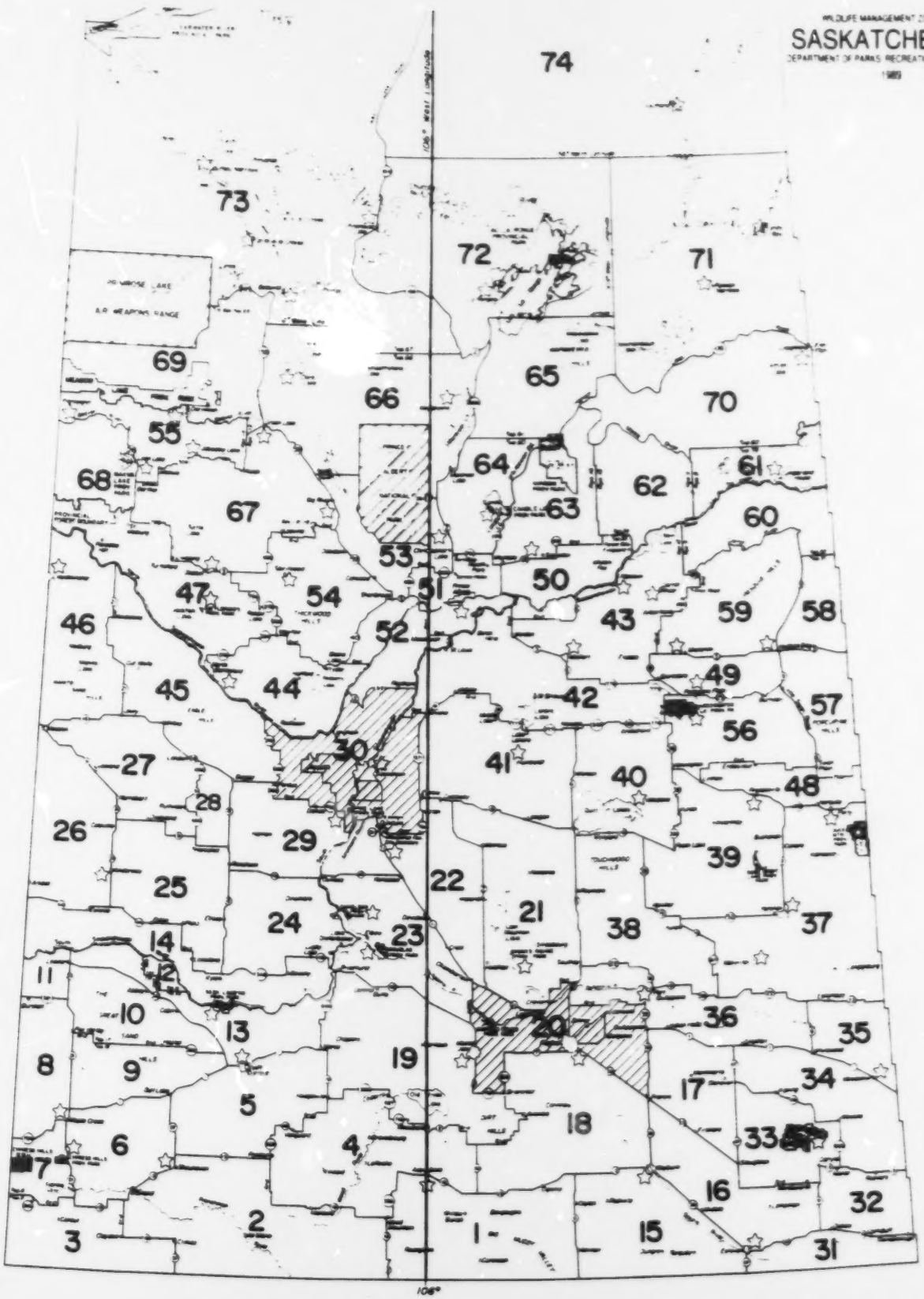
I. A cheque or money order covering the licence fees of **all** applicants named on the envelope should be enclosed. Make the cheque or money order payable to Saskatchewan Parks, Recreation and Culture. **Do not send cash.**

J. On the reverse side of the application, the person who signed the application should print their name, current mailing address and postal code in the space provided. If the application is not drawn, this serves as the mailing address for returning the unopened application envelope.

Applicants should be aware that they have no choice of season dates in zones where split seasons are offered. If you are unable to hunt in either of the split seasons, apply only for zones where split seasons do not occur.

Applicants wishing to hunt within Provincial Parks are advised that opening of all seasons is delayed until Sept. 6, 1989.

Appendix 2. (con't).



Appendix 2. (con't).

Tentative Season Dates

All season dates listed in the 1989 Saskatchewan Big Game Draw information sheet are tentative. Hunters have been requesting that the results of the Big Game Draw be made available at an earlier date. In response to this the Big Game Draw has been moved ahead approximately one month. Hunters will be informed earlier allowing them more time to schedule holidays and examine other options. Due to the acceleration of the 1989 Big Game Draw, analysis of population survey information is not complete at the time of printing and all quotas listed are from 1988.

New For 1989

Elk Hunting: Zones 6 + 7 (Cypress Hills) and 54 (Thickwood Hills)

Persons applying for the Cypress Hills area, (WMZ 6 and that portion of WMZ 7, east of Highway No. 271 and Grid Road No. 615) or for the Thickwood Hills (WMZ 54), should be aware that most hunting opportunity is on private land. Successful applicants are advised to contact the landowners as soon as possible to arrange permission to hunt in this area. **Special draw licences do not guarantee access to private land.**

That portion of Zone 7, west of Highway No. 271 and Grid Road No. 615, including Cypress Hills (West Block) Provincial Park will have a split season in 1989 and additional licences allocated to it. This is in response to an increase in elk populations within the zone.

Licence Quotas

The licence quotas listed in this sheet are those which were used for the 1988 special seasons and are included as a general reference only. Advancing the 1989 Big Game Draw schedule by one month has prevented complete analysis of population data and quota determinations before the time of printing. Special season licence quotas for 1989 will be printed in the 1989 Hunting and Trapping Guide.

Special Licences will be mailed out prior to printing of the 1989 Hunting and Trapping Guide. Hunters are advised to obtain a copy at their nearest licence vendor or Parks, Recreation and Culture office.

Muzzleloading Rifle Antelope Season

An experimental, three-day muzzleloading rifle antelope season will be offered in Wildlife Management Zones 7 and 14 for 1989. These zones had a surplus of rifle licences in 1988 and population surveys indicate additional hunting opportunity is available. Applicants successfully drawn for either of these two zones may hunt with a muzzleloader three days prior to the regular rifle season. During the muzzleloading rifle season ONLY, hunters may wear camouflage clothing. After the rifle season opens, hunters must wear regular rifle season colors and they may hunt with either a muzzleloader or a rifle until their tag has been filled. This experimental season will be assessed during 1989 to determine the future continuation of muzzleloading rifle antelope seasons.

Combined Zones for Elk Hunting

In 1989 hunters may apply for Zones 48, 49, 56 and 57 **Combined.** If successfully drawn for this area the hunter may hunt in any or all of the four zones. Due to hunter concentration problems in some parts of these combined zones, Parks, Recreation and Culture is considering the implementation of separate licence quotas for each zone in 1990.

WMZ 59 will be added to the existing north-eastern zones with special elk seasons in 1989. Growing populations warrant the addition of this new season which is expected to have a small quota (50 licences).

Mule Deer News

In 1989 two additional zones, WMZ 44 and 47, will be opened for a special season mule deer hunt. Mule deer populations have been on a steady increase in these zones thereby allowing this new opportunity.

An antlerless mule deer season will be offered in the eastern portion of Zone 13, east of Highway No. 4. This will focus additional hunting pressure in the east part of the zone where antlerless mule deer populations are high.

Primitive weapons hunters interested in Zones 9, 10 or 12 are advised that these zones will have separate licence quotas in 1989. In past years Zones 9 and 10 were combined. The new system will allow greater hunting opportunity and better management of the resource.

Moose Hunting: Zones 55, 68 + 47 (Bronson Forest) and 54 (Thickwood Hills)

Special moose seasons will be discontinued in the Bronson Forest area (WMZ 55, 68 and that portion of WMZ 47 north of Highway No. 3 and west of Highway No. 26) and Thickwood Hills (WMZ 54) for 1989. Evidence of reduced populations in both areas and concern over increasing access trails in the Bronson Forest warrants the elimination of these special seasons at this time.

Appendix 2. (con't).

Special Mule Deer Season (one animal either-sex)

Hunters may apply for only ONE of the either-sex seasons: rifle, muzzleloading rifle or archery. Hunters may apply for BOTH either-sex Mule Deer and Antlerless Mule Deer. Successful applicants in the either-sex draw are eliminated from the Antlerless Mule Deer draw.

Rifle:

Nov. 6 - Nov. 8 **SPLIT SEASON** **Nov. 9 - Nov. 11**	Zones 2, 9, 10, and 12 to 14 including Saskatchewan Landing Provincial Park. (Primitive weapons **only** within the Park).
Nov. 6 - Nov. 11	Zones 1, 3 to 8, 11, 18, 19, 23 to 27, 29, 30, 44 and 45, including Cypress Hills (West Block) Provincial Park.
Nov. 13 - Nov. 18	Zones 46 and 47.
	1988 Mule Deer Rifle Quotas 1 (400), 2 (700), 3 (50), 4 (150), 5 (200), 6 (250), 7 (150), 8 (50), 9 (400), 10 (700), 11 (50), 12 (100), 13 (400), 14 (600), 18 (50), 19 (300), 23 (250), 24 (150), 25 (150), 26 (150), 27 (100), 29 (150), 30 (150), 45 (100), 46 (250). 44 and 47 (new for 1989).

Muzzleloading Rifle:

A muzzleloading rifle Mule Deer Licence is valid **only** during the Muzzleloading Season.

Oct. 2 - Oct. 14	**Combined** Zones 1 to 8, 13, 14, 18 to 27, 29, 30, and 44 to 47, including Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1.** 1988 Quotas: 1 to 8, 13, 14, 18 - 27, 29, 30, 45 and 46 combined (200), 44 and 47 (new for 1989).
Oct. 2 - Oct. 14	Zones 9, 10 and 12. 1988 Quotas: 9 and 10 combined (50). 12 (new for 1989).

Archery:

Sept. 4 - Oct. 14	**Combined** Zones 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 44 to 47, including Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1.** 1988 Quota: 850 licences. 44 and 47 (new for 1989).
Sept. 18 - Sept. 30	Zones 9, 10 and 12. 1988 Quota: 150 licences.

1989 Calendar

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Appendix 2. (con't).

Antlerless Mule Deer (one animal, antlerless only)

Definition of Antlerless Mule Deer - adult doe or a fawn born in 1989.

Hunters may apply for only **ONE** of the Antlerless Mule Deer seasons: rifle, muzzleloading rifle or archery. Hunters may apply for **BOTH** Either-sex Mule Deer and Antlerless Mule Deer. Successful applicants in the Either-sex draw are eliminated from the Antlerless Mule Deer draw. If you apply with different people for the Antlerless Mule Deer draw than on your Either-sex application, all applicants will be eliminated from the antlerless draw if you are drawn for the Either-sex season.

Antlerless Mule Deer are treated as a separate species in the Big Game Draw. Applicants who are successfully drawn for Antlerless Mule Deer will **NOT** have their Priority Pool Status for Either-sex Mule Deer affected.

Applicants 12 to 15 years of age on or before May 31, 1989 may apply for an Antlerless Mule Deer licence provided they supply with their application written consent from their parent or guardian on a Saskatchewan Parks, Recreation and Culture consent form. Forms are available at SPRC, RCMP and Municipality offices.
Federal gun control legislation requires persons under 16 years of age to obtain minor's permits to possess firearms. Contact your local police detachment to apply for permits or obtain more information.
All applicants 17 years of age and younger and all first time hunters must hold a valid Firearm Safety/Hunter Education certificate.

Rifle:

Nov. 13 - Nov. 18	Zones 1, 2, 4 to 6, 8, 9, 12, 13 (east of Highway No. 4 only) and 19.
Nov. 13 - Nov. 15 **SPLIT SEASON** **Nov. 16 - Nov. 18**	Zones 10 and 11.
Nov. 16 - Nov. 18	Zone 46.
	1988 Antlerless Mule Deer Rifle Quotas: 1 (300), 2 (200), 4 (150), 5 (100), 6 (100), 9 (100), 10 (1000), 11 (100), 19 (200), 8, 12, 13 and 46 (new for 1989).

Muzzleloading Rifle:

A muzzleloading Antlerless Mule Deer licence is valid **ONLY** during the Muzzleloading Rifle Season.

Oct. 2 - Oct. 14	**Combined** Zones 1 to 8, 13, 14, 18 to 27, 29, 30, 45 and 46, including Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1.** 1988 Quota: 100 licences.
Oct. 2 - Oct. 14	Zones 9 and 10. 1988 Quota: 50 licences for 9 and 10 **Combined.**

Archery:

Sept. 4 - Oct. 14	**Combined** Zones 1 to 8, 13 to 15, 18 to 27, 29, 30, 31, 45 and 46, including Saskatchewan Landing and Cypress Hills (West Block) Provincial Parks. **Designate Zone 1.** 1988 Quota: 100 licences.
Sept. 18 - Sept. 30	Zones 9 and 10. 1988 Quota: 50 licences for 9 and 10 **Combined.**

Appendix 2. (con't).

Special Moose Season (one animal either-sex)

Sept. 11 - Sept. 16 and **Nov. 6 - Nov. 18**	**Combined** Zones 48, 49 and 56. **Designate Zone 48.** 1988 Quota: 300 licences. Zones 57 to 62 and Zone 67 (includes Leaf Lake Wildlife Management Unit). 1988 Quotas: 57 (200), 58 (200), 59 (400), 60 (200), 61 (100), 62 (50), 67 (150).
Nov. 6 - Nov. 18	Zones 37 and 56G including Duck Mountain and Greenwater Lake Provincial Parks. 1988 Quotas: 37 (100), 56G (50).
Sept. 11 - Sept. 23 and **Nov. 6 - Nov. 18**	Zone 50 (includes Fort a la Corne Wildlife Management Unit). 1988 Quota: 200 licences.
Oct. 23 - Oct. 28	Zone 6. 1988 Quota: 25 licences.

Archery Moose Season (one animal either-sex)

In 1989 the Archery Moose Season in Zones 55 and 68 will be an open season, not requiring a draw licence. Archers will be able to hunt under a Regular Moose Licence (one animal either-sex), Sept. 18 - Sept. 30. Unsuccessful archers may use their licence during the regular rifle season, **however, only bulls or 1989 calves may be taken during the regular rifle season.**

Sept. 18 - Sept. 30	Zone 37 (includes Duck Mountain Provincial Park), 1988 Quota: 50 licences.

Special Elk Season (one animal either-sex)

Aug. 28 - Sept. 16	That portion of Zone 43 west of Highway No. 35 and north of Highway No. 355 **combined** with that portion of Zone 50, south of Highway No. 55, including Fort a la Corne Wildlife Management Unit. **Designate Zone 50.** 1988 Quota: 100 licences.
Oct. 16 - Oct. 21	**Combined** Zones 48, 49, 56 and 57 including Greenwater Lake Provincial Park. **Designate Zone 48** 1988 Quota: 600 licences. Zones 58, 59 and that portion of Zone 63 south of the Torch River. (Nipawin Provincial Park closed). 1988 Quota: Zone 59 (50), Zone 63 (50), Zone 58 (new in 1989).
Oct. 23 - Oct. 28	Zone 33, including Moose Mountain Provincial Park 1988 Quota: 100 licences.
Oct. 23 - Oct. 28 **SPLIT SEASON** **Oct. 30 - Nov. 4**	That portion of Zone 7, west of Highway No. 271 and Grid Road No.615 including Cypress Hills (West Block) Provincial Park. 1988 Quota: 100 licences.
Nov. 6 - Nov. 18	**Combined** Zones 6 and 7, east of Highway No. 271 and Grid Road No. 615 **Designate Zone 6** 1988 Quota: 50 licences.
Nov. 6 - Nov. 18	That portion of Zone 54 south of Highway No. 3 1988 Quota: 50 licences.

Special Antelope Season (one animal either-sex)

Oct. 26 - Nov. 18	Zones 1, 2, 4 to 6, 8 to 13, 19, 23 to 26. **Combined** Zones: 2 and 5. **Designate 2.** 12 and 13. **Designate 12.** 8 and 11. **Designate 8.** 19 and 23. **Designate 19.**
Oct. 23 - Nov. 18	Zones 7 and 14, including Saskatchewan Landing Provincial Park. (Primitive weapons **only** within the Park). **** Note ** Oct. 23 - 25 inclusive, a muzzleloading rifle only may be used.**
Oct. 30 - Nov. 18	Zone 3.
1988 Licence Quotas:	1 (75), 3 (650), 4 (50), 6 (100), 7 (250), 9 (550), 10 (225), 14 (225), 24 (75), 25 (75), 26 (50).
Combined Zones:	2 and 5. 1988 Quota: 900 licences, 8 and 11. 1988 Quota: 250 licences, 12 and 13. 1988 Quota: 225 licences, 19 and 23. 1988 Quota: 75 licences.

Archery Antelope Season (one animal either-sex)

Sept. 4 - Oct. 14	**Combined** Zones 1 to 15, 18, 19, 23 to 26, including Saskatchewan Landing Provincial Park. **Designate Zone 1.** 1988 Quota: 300 licences.

Appendix 2. (con't).

Licence Fees

Moose	$50.00
Elk	$50.00
Antelope	$35.00
Mule Deer (either-sex and antlerless)	$35.00

All successful applicants must also purchase a Saskatchewan Wildlife Habitat Certificate to validate their licence.

Wildlife Habitat Certificate	$10.00

Results

Results of the Big Game Draw will be available July 12, 1989. The information number is 787-2347. Phone lines will be open from 9:00 a.m. to 9:00 p.m. July 12 to 14; and from 9:00 a.m. to 5:00 p.m. weekdays after July 17. The information line will no longer be in operation after July 28, 1989. Collect calls will not be accepted.

Priority Pool System

Applicants are grouped in a pool system for each species. In the Big Game Draw, greater priority is given to applications which fall within the higher pools.

Applications will be entered into the lowest priority pool of any person on the application. i.e. If you apply on the same application with a person who has "C" Pool status, your application will be treated with "C" Pool priority, regardless of your individual status. Consequently, applications with "A", "B" or Super "A" status **may** be put into a lower pool for the draw.

An applicant's pool for each species is determined by the following conditions:

Super "A" Pool — 1st Priority
- — consists of applicants who qualified for "A" Pool and applied in the previous year's draw (1988) but were not successfully drawn for that species.
- — to enter Super "A" Pool and to retain Super "A" status, applicants must continue to apply for that species every year. ie. Super "A" Elk applicants must apply every year to maintain their status.

"A" Pool — 2nd Priority
- — consists of applicants who have **not** had a licence for a species in the past **two** years (1987 + 1988).
- — also includes all first time applicants for a species.
- — Unsuccessful "A" Pool applicants **must** apply the following year for the same species to advance to Super "A" Pool.

"B" Pool — 3rd Priority
- — consists of applicants who **were** successfully drawn **two** years previously (1987).

"C" Pool — 4th Priority
- — consists of applicants who were drawn the previous year (1988).

Reasons for Application Rejection

1. Application was not made on an official 1989 application envelope.
2. Application did not contain licence fees or had incorrect fees or unsigned cheques enclosed.
3. Application contained:
   - — false or misleading information. (**Note:** Supplying false or misleading information is a violation of The Wildlife Act).
   - — special instructions.
   - — ineligible names.
   - — person's name who was on more than one application for a species.
   - — incorrect Saskatchewan Health Services number.

Saskatchewan Parks, Recreation and Culture

For more information:
Saskatchewan Parks, Recreation and Culture
Communications Branch
3211 Albert Street
REGINA, Saskatchewan
S4S 5W6
Telephone: (306) 787-2700

Appendix 3. 1989 big game hunter survey questionnaire.

Saskatchewan
Parks, Recreation
and Culture

Hon. Colin Maxwell
Minister

1989 Big Game Hunter Survey

Fellow Sporthunter:

We are again asking for your assistance with the Big Game Hunter Survey.

The harvest and hunting activity information you provide assists us in establishing season dates, quotas and bag limits for big game species each year. The information helps ensure that our populations remain healthy and continue to provide Saskatchewan sporthunters with quality recreation. Your response to the questionnaire is an important part of our provincial wildlife management program.

Please use this questionnaire to record your 1989 hunting activities, then return it in the enclosed postage paid envelope when you are finished hunting for the year.

As a hunter, you will be interested in the results of last year's survey. The enclosed page, which is yours to keep, summarizes the 1988 big game harvest.

We are often asked how people are selected for the Big Game Hunter Survey and why some hunters receive questionnaires two or more years in a row. Each year 30% of white-tailed deer hunters, selected at random from the previous year's licence sales, and all of the successful big game draw applicants are sent questionnaires. Whitetail hunters, who often hunt more than one species, provide hunting information for regular moose, regular elk and bear seasons. If a hunter is drawn for a big game species or is selected as part of the white-tailed deer random sample, he/she will receive a questionnaire.

We greatly appreciate your assistance with the Big Game Hunter Survey. By doing so, you contribute to better wildlife management in Saskatchewan.

Have a safe and successful 1989 hunting season.

Dennis Sherratt
Director
Wildlife Branch
Saskatchewan Parks, Recreation and Culture

Appendix 3. (con't).

1989 Big Game Hunter Survey

1. **If you did not purchase a 1989 Saskatchewan Big Game Licence please check ☑ here ☐ and return this questionnaire. Thank you.**

2. If you **did** purchase a 1989 Saskatchewan Big Game Licence please fill out the following questionnaire, **even if you did not hunt**, and return before **December 15, 1989**.

3. **Please record all your hunting activities, whether or not you bagged an animal.**
   - If you hunted less than a day, record as a full day (see example)
   - If you hunted in more than one zone, separate accordingly (see example)

01 White-Tailed Deer

Licences Purchased?

1st Either Sex	2nd Either Sex	Antlerless (WMZ 2, 6, 11/14, 31/32)
☐	☐	☐

Hunt Information

1. 1st (Either Sex)

	ZONE	DAYS HUNTED
1. Archery	☐ ☐	☐ ☐
2. Muzzleloader	☐ ☐	☐ ☐
3. Rifle	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐

Animal was (✓)
KILL ZONE ___ Buck ___ Doe ___ Fawn ___

2. 2nd (Either Sex)

	ZONE	DAYS HUNTED
1. Archery	☐ ☐	☐ ☐
2. Muzzleloader	☐ ☐	☐ ☐
3. Rifle	☐ ☐ ☐	☐ ☐ ☐

Animal was (✓)
KILL ZONE ___ Buck ___ Doe ___ Fawn ___

[redacted]

	ZONE	DAYS HUNTED
1. Archery	☐ ☐	☐ ☐
2. Muzzleloader	☐ ☐	☐ ☐
3. Rifle	☐ ☐	☐ ☐

Animal was (✓)
KILL ZONE ___ Doe ___ Fawn ___

02 Mule Deer

Licence Purchased? Zone ☐

Rifle Either Sex	Rifle Antlerless	Archery Either Sex	Archery Antlerless	Muzzleloader Either Sex	Muzzleloader Antlerless
☐	☐	☐	☐	☐	☐

Hunt Information

1. Rifle (Either Sex)

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Buck ___ Doe ___ Fawn ___

[redacted]

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Doe ___ Fawn ___

[redacted]

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Buck ___ Doe ___ Fawn ___

[redacted]

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Doe ___ Fawn ___

[redacted]

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Buck ___ Doe ___ Fawn ___

[redacted]

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Doe ___ Fawn ___

03 Moose

Licence Purchased?

Regular Bull-Calf	Archery Bull-Calf	Special Draw Seasons Archery	Special Draw Seasons Either Sex	Special Draw Seasons Zone
☐	☐	☐	☐	☐

Hunt Information

1. Regular (Bulls and Calves Only)

DATE	ZONE	DAYS HUNTED
1. Aug. 28-Sept. 30	☐ ☐	☐ ☐
2. Oct. 2-Oct. 7	☐ ☐ ☐	☐ ☐ ☐
3. Oct. 9-Nov. 18	☐ ☐	☐ ☐
4. Nov. 20-Dec. 2	☐ ☐ ☐	☐ ☐ ☐

KILL ZONE ___ Animal was (✓)
DATE _____ Bull ___ Calf ___

2. Special (Either Sex)

DATE	ZONE	DAYS HUNTED
1. Sept. 11-Sept. 23	☐ ☐	☐ ☐
2. Oct. 23-Oct. 28	☐ ☐	☐ ☐
3. Nov. 6-Nov. 18	☐ ☐	☐ ☐

KILL ZONE ___ Animal was (✓)
DATE _____ Bull ___ Cow ___ Calf ___

[redacted]

ZONE ☐ DAYS HUNTED ☐
Animal was (✓)
KILL ZONE ___ Bull ___ Cow ___ Calf ___

Appendix 3. (con't).

4 **Example**

03 Moose

Licence Purchased?

Regular Bull Only	Archery	Either Sex (WMZ 53)	Zone
✓			

Hunt Information

1. Regular (Bulls and Calves Only)

DATE	ZONE	DAYS HUNTED
Oct. 2-Oct 7	49	4
	53	5
Nov. 20-Dec. 2	56	3

KILL ZONE 56 DATE Nov. 22 — Animal was (✓) Bull ___ Calf ✓

5 **1989 Calendar**

AUGUST							SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5						1	2	1	2	3	4	5	6	7				1	2	3	4							2
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28	29	30	29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
																												31						

04 Antelope

Licence Purchased?

Rifle/Muzzleloader	Archery	Zone

Hunt Information

1. Rifle/Muzzleloader

DATE	ZONE	DAYS HUNTED
1. Oct. 23-Oct. 25		
2. Oct. 26-Oct. 28		
3. Oct. 30-Nov. 4		
4. Nov. 6-Nov. 11		
5. Nov. 13-Nov. 18		

KILL ZONE ___ DATE _____ — Animal was (✓) Buck ___ Doe ___ Kid ___

2. Archery

ZONE	DAYS HUNTED

KILL ZONE ___ — Animal was (✓) Buck ___ Doe ___ Kid ___

05

Licence Purchased?

Regular Bulls Only	Either Sex (WMZ 53)	Special Draw Seasons Either Sex
		Zone

DATE	ZONE	DAYS HUNTED
1. Sept. 18-Sept. 23		
2. Sept. 25-Sept. 30		

KILL ZONE ___ DATE _____ — Animal was (✓) Bull ___

ZONE	DAYS HUNTED
53	

KILL DATE _____ — Animal was (✓) Bull ___ Cow ___ Calf ___

ZONE	DAYS HUNTED

KILL ZONE ___ DATE _____ — Animal was (✓) Bull ___ Cow ___ Calf ___

06

Licence Purchased?

If yes, please check here ☐

Hunt Information

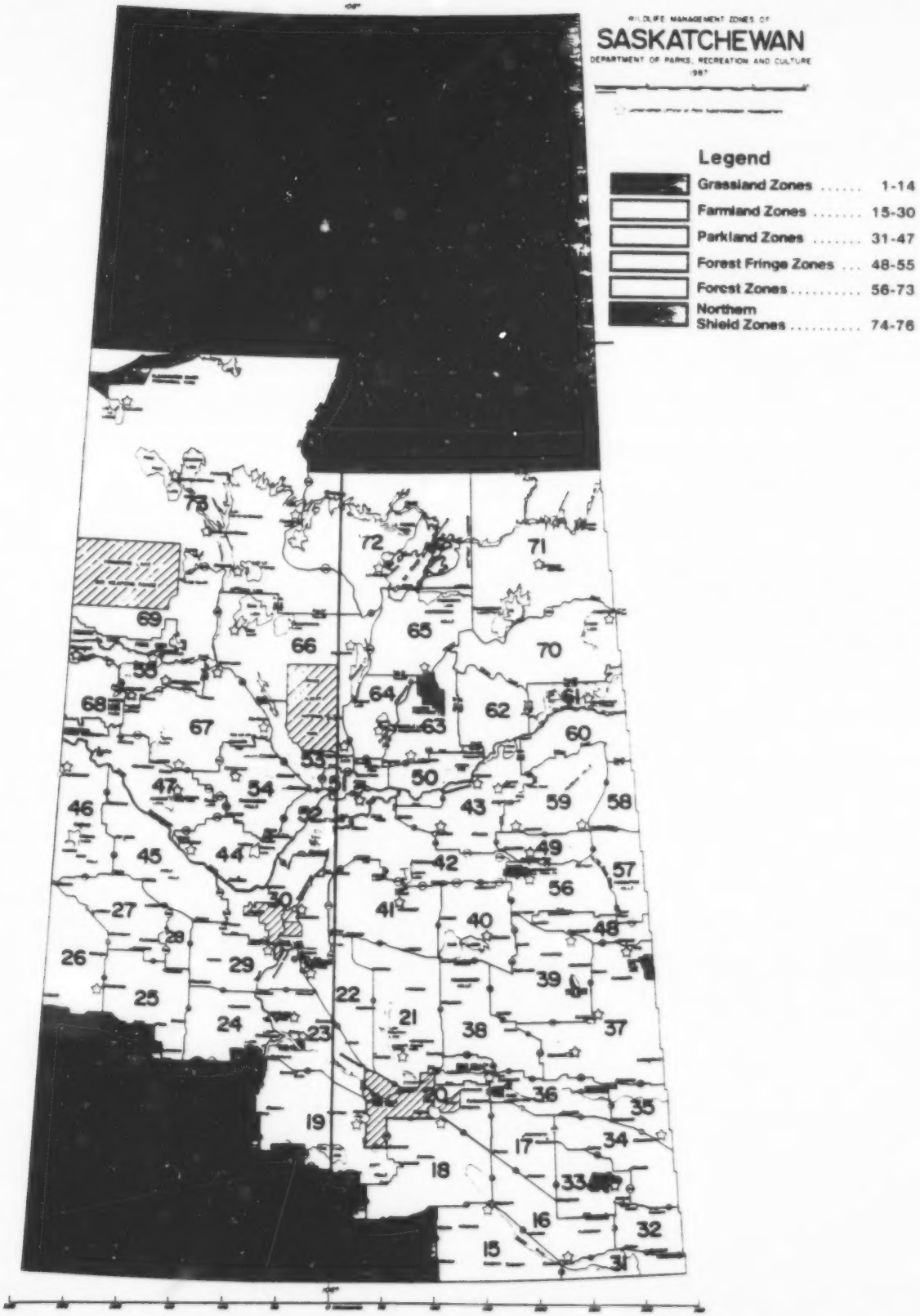
DATE	ZONE	DAYS HUNTED
Spring		
Fall		

Animal was (✓)

KILL ZONE ___ — Boar ___ Sow ___ Cub ___

Thank you for your contribution to big game management in Saskatchewan.

Appendix 3. (con't).



Appendix 4. Follow-up letter for 1989 big game hunter survey questionnaire.

Saskatchewan

Saskatchewan
Parks, Recreation
and Culture

3211 Albert Street
Regina, Canada
S4S 5W6

January 2, 1990

Fellow Sporthunter:

This is a friendly reminder to return the **Big Game Hunter Survey** that we sent you in November. **If you have already mailed your survey, please disregard this letter.**

We have enclosed another survey form and a self-addressed, postage-paid envelope in case the first survey was delayed or went astray during the Christmas mail rush.

The information you provide assists our biologists in setting hunting seasons for next year. This ultimately benefits you, as a sporthunter, because hunting seasons that are set based on accurate harvest and hunter activity information ensure that our big game populations remain healthy and continue to provide sport hunting opportunity.

By completing the questionnaire you will be contributing to better wildlife management in Saskatchewan.

Yours sincerely,

Dennis Sherratt

Dennis Sherratt
Director
Wildlife Branch

Appendix 5. Projected hunting statistics by licence type for antelope, 1989.

WMZ	# Actual Hunters	# Zone Hunters	# Successful Hunters	% Hunter Success	Harvest	Harvest Structure Males:Females:Young	Hunter Days	Hunter Days/ Animal	Hunter Days/km² In Zone
Grassland Archery									
1[a]	335	335	90	27.0	90	9.00:1:0.33	1,669	18	0.2006
Total	335	335	90	27.0	90	9.00:1:0.33	1,669	18	0.2006
Grassland Rifle									
1	100	101	95	95.0	95	1.38:1:0.23	176	2	0.0211
2	1,097	1,103	953	86.9	953	4.51:1:0.11	1,940	2	0.1824
3	902	907	767	85.0	767	1.43:1:0.09	1,609	2	0.3744
4	75	75	57	75.4	57	14.00:1:0.00	113	2	0.0139
6	150	151	140	93.1	140	3.50:1:0.25	217	2	0.0517
7	327	329	254	77.7	254	2.54:1:0.11	723	3	0.3816
8	351	353	337	95.9	337	3.25:1:0.04	510	2	0.1503
9	676	680	580	85.7	580	2.33:1:0.09	1,411	2	0.4106
10	398	401	360	90.6	360	2.39:1:0.11	688	2	0.1941
12	302	304	262	86.8	262	2.37:1:0.16	558	2	1.6233
14	300	302	216	72.1	216	2.04:1:0.30	708	3	0.1270
Total	4,678	4,706	4,020	85.9	4,020	2.53:1:0.12	8,654	2	0.1335
Farmland Rifle									
19	102	104	93	91.4	93	2.00:1:0.00	176	2	0.0191
24	76	77	62	81.2	62	2.50:1:0.25	166	3	0.0344
25	75	76	76	100.0	76	3.25:1:0.00	99	1	0.0170
26	75	76	65	87.0	65	5.00:1:0.00	120	2	0.0265
Total	328	333	296	90.4	296	2.83:1:0.05	560	2	0.0186

[a]Combined WMZ 1 to 15, 18, 19 and 23 to 26.

Appendix 6. 1989 Saskatchewan spring bear season.

Saskatchewan
Parks, Recreation
and Culture

Hon. Colin Maxwell
Minister

1989 Saskatchewan Spring Bear Season

Changes For 1989

Non-resident Guiding Regulations

In 1989, non-resident hunters must utilize the services of a licenced guide to hunt white-tailed deer, moose and bear in Saskatchewan.

The new regulations have been implemented to provide long term stability for Saskatchewan outfitters and help ensure that non-residents enjoy a high quality hunt in the province.

For information on Saskatchewan guides and outfitters, please contact Tourism Saskatchewan, 2103 - 11th Avenue, Regina, Saskatchewan. S4P 3V7.

Phone toll free 800-667-7191 (Canada & U.S.A.)
800-667-7538 (Saskatchewan)

Hunter Assistance Requested

All bear hunters are requested to help wildlife managers assess the current status of provincial bear populations by providing biological samples from the animals they bag. All hunters providing samples will be mailed a limited edition lapel pin and be eligible for the annual major awards draw.

Hunters are asked to provide both premolar teeth or the entire lower jaw, information on the sex of all animals taken and the reproductive tract of female bears. Samples may be dropped off at any department office.

Bear Bag Limit Revised

Current biological data suggests that hunted bear populations in Saskatchewan are declining. A core group of resident bear hunters has become established during recent years. This local bear hunting tradition is compounded with a rapidly increasing demand by non-resident bear hunters to significantly impact local populations.

In response to concerns regarding hunting pressure impacts on provincial bear populations, Saskatchewan Parks, Recreation and Culture has reduced the bag limit for bear to **one animal per year**. Bear hunters may purchase one licence only and participate in the spring and/or fall season until their tag has been filled.

Licence fees for bear are currently under review and may be increased to correspond with white-tailed deer fees for the 1990 bear season. This will bring the licence fee charged for bear in line with other big game animals of similar status.

Important Changes for the 1989 Big Game Draw

Hunters have been requesting that results of the Big Game Draw be made available at an earlier date.

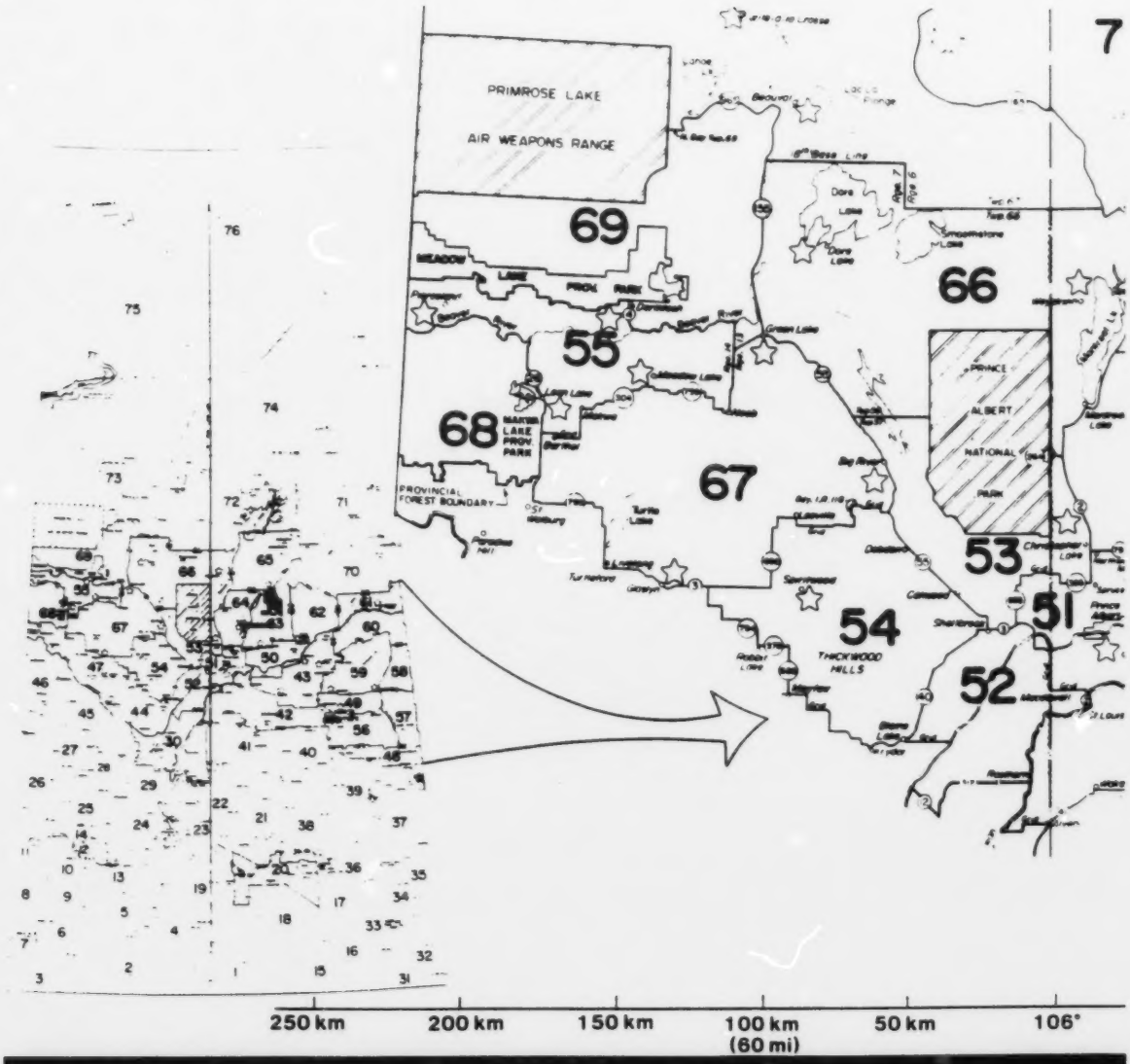
In response to these requests, the 1989 Big Game Draw will be held approximately one month earlier. **Applications for the 1989 Big Game Draw must be received no later than 5:00 p.m. c.s.t., Wednesday, May 31, 1989 to be eligible. Post office date stamps are not acceptable.** 1989 Big Game Draw Information Sheets will be available at offices of the RCMP, Rural Municipalities and Saskatchewan Parks, Recreation and Culture by late April.

Results of the 1989 Big Game Draw will be available July 12, 1989.

Season dates and quotas on the 1989 Big Game Draw Information Sheet will be tentative as analysis of population surveys may not be complete at the time of printing.

The accelerated draw process will inform hunters earlier allowing more time for scheduling of holidays and examining regular season options for species for which they were not drawn.

Appendix 6. (con't).



To calculate times for your hunting area, subtract 1 minute for every 16 kilometres (10 miles) distance east of 106 degrees longitude or add 1 minute for every 16 kilometres distance west of 106 degrees longitude. The 106 degree line of longitude is shown on the wildlife management zone map in bold print.

Sunrise and Sunset Times

No person shall hunt, shoot at or kill any big game between sunset and one half hour before sunrise.

Week Ending 1989	Sunrise a.m.	Sunset p.m.
April 15	6:17	7:54
April 22	5:57	8:11
April 29	5:47	8:18
May 6	5:30	8:35
May 13	5:21	8:42
May 20	5:08	8:56
May 27	5:03	9:02
June 3	4:58	9:09
June 10	4:54	9:13
June 17	4:52	9:19
June 24	4:53	9:20

April

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

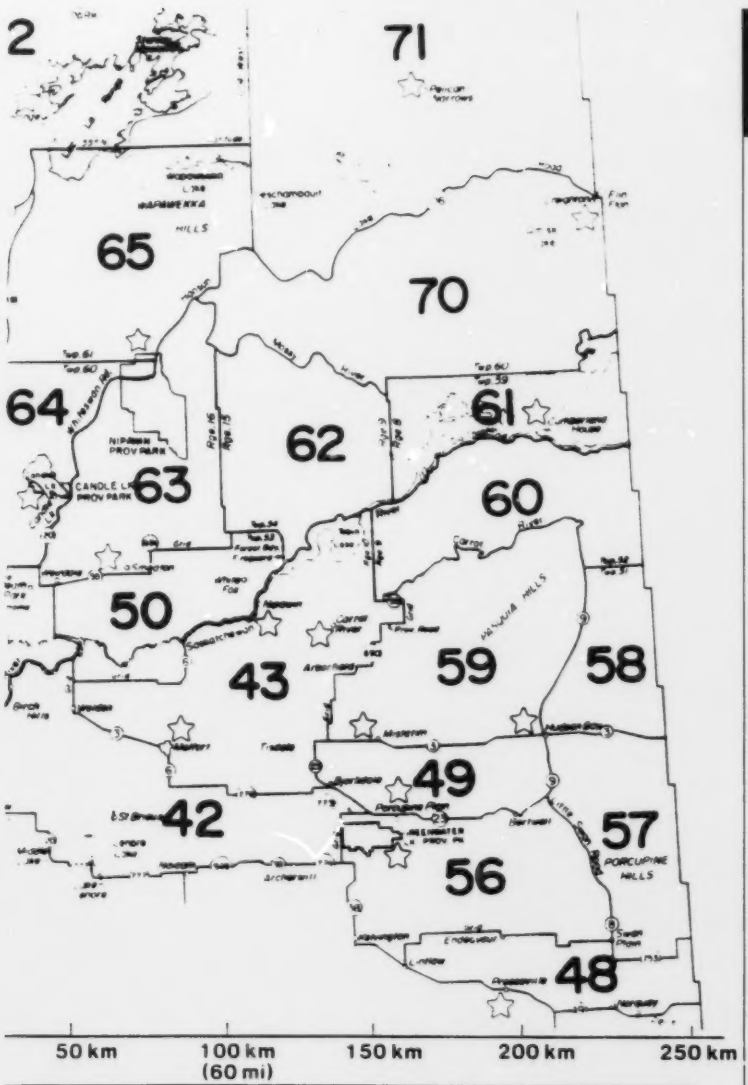
May

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Appendix 6. (con't).



Seasons

April 10 – June 10
Wildlife Management Zones 37, 42, 43 and 48 to 69 including Fort a la Corne Wildlife Management Unit, Nipawin Provincial Park and the Bronson Recreation Site (Licence required).

April 24 – June 24
Wildlife Management Zones 70 to 76. (Licence required).

April 10 – May 27
Duck Mountain, Greenwater Lake and Meadow Lake Provincial Parks (Licence required).

April 24 – May 27
Lac La Ronge and Clearwater River Provincial Parks. (Licence required).

Bag Limit

One bear, either sex. No second bear licence for 1989.

In Wildlife Management Zones 1 to 36, 38 to 41 and 44 to 47, bears may be hunted at any time of year without licence, subject to the Wildlife Regulations.

Hunters must purchase a Wildlife Habitat Certificate to hunt spring bear. Spring bear hunters are advised to retain their certificate for use in the fall hunting seasons for other species.

Licence Fees

Saskatchewan Wildlife Habitat Certificate	$ 10.00
Residents	$ 15.00
Canadian Resident	$ 50.00
Non-resident	$100.00

Regulations

This is a summary. Information on regulations and interpretation is available at Saskatchewan Parks, Recreation and Culture offices indicated on the Zone Map by a star symbol.

Note: Persons convicted of a hunting violation lose their hunting privileges for at least one year.

1. No person shall:
   - (a) carry a loaded firearm in or on a vehicle, or while on horseback. A firearm with shells in the magazine is considered to be loaded.
   - (b) use any vehicle or powerboat to chase any wildlife species.
   - (c) use an aircraft for any purpose connected with searching for, hunting, or killing game, except as a means of transportation to a hunting camp or hunting area by the most direct route available at normal flight altitudes.
   - (d) hunt any wildlife on a Sunday during an open game season.
   - (e) shoot across or along the travelled portion of a provincial highway or grid road.
   - (f) handle or discharge a firearm without reasonable consideration for persons or property.
   - (g) hunt wildlife within 500 metres of a building, stockade or corral occupied by persons or livestock without consent of the owner or person in charge.
   - (h) hunt big game with a firearm or metal projectile of 5.80 millimetres (.23 calibre) or less.
   - (i) purchase more than one bear licence.
   - (j) take live bears into captivity.
   - (k) hunt
     - (i) big game with bows of less than 18.2 kilograms draw weight or arrows with heads measuring less than 2.2 centimetres in diameter;
     - (ii) with barbed or poisoned arrows;
     - (iii) with crossbows.
2. **Bear hunters, including archers,** must wear a complete outer suit coloured scarlet, bright yellow, blaze orange, white or any combination of these colours. The cap may be any of these colours except white.
3. All persons 17 years of age or under, and all first-time hunters must acquire a Firearm Safety/Hunter Education Certificate before purchasing a bear licence.

Appendix 6. (con't).

Bear Baiting Regulations

It is no longer necessary to obtain a permit from a conservation officer before setting out a bait. Changes concerning signing have also been made, so please read the following regulations carefully.

1 No person shall, without consent of the owner or occupant of land, set out bait for the hunting of bear.

2 No person shall place out a bait for hunting bear in a provincial forest, vacant Crown Land, Wildlife Development Fund land, recreation site or a provincial park without:

a) posting in a prominent location at the bait site a sign of suitable weather resistant material of not less than 800 cm^2, (approximately 8 in. x 12 in.) which is clearly and legibly marked in a permanent manner with his or her name and address, or

b) marking permanently and legibly his or her name and address on any container used for holding a bear bait.

NOTE: The onus is on the hunter to ensure signs and barrels (if used) remain legible if they have been destroyed or altered by bears.

3 No person shall hunt at a bait site placed out by another person without the other person's consent.

4 No person shall hunt over a bait that is not properly signed.

5 No person other than the owner shall tear down, remove, damage, deface or cover up any bait or sign.

6 No person shall place out a bait for the hunting of bear within 500 metres of a campground, cottage subdivision or picnic site.

7 A person who places out bait shall, within one week after the close of the season, remove or dispose of all bait, and remove all bait containers and signs from the provincial forest, vacant Crown land, Wildlife Development Fund land, recreation site or provincial park.

Hunting Vehicle Use

1 (a) Within Zones 1 to 47, 50 to 52 and 54, during an open season for big game, no person shall carry a firearm on an all-terrain vehicle.

(b) Subsection (a) does not apply in Duck Mountain Provincial Park and Fort a la Corne Wildlife Management Unit during spring bear season. Firearms must be encased.

2. "All-terrain vehicle" means any self-propelled vehicle designed for off-highway travel and includes any trailer, toboggan or other accessory. A four-wheel drive is considered an ATV when it is being operated in an off-road situation where a two-wheel drive vehicle would not normally be used.

3 Within Zones 48, 49, 53 and 55 to 76, during an open season for big game, no person shall carry a firearm on an all-terrain vehicle unless such firearm is encased.

4 "Encased" means completely enclosed in a fastened gun case or wrapped in fabric, plastic or similar material so as not to be readily available for use.

5 Within P[illegible] and provincial community pastures, no person shall operate or be a passenger in any vehicle for the purpose of hunting except along a provincial highway, public highway, road or trail, except to retrieve a bagged animal.

Note: The pastures are closed to hunting when the cattle have been placed in them.

Hunter Ethics

Spring bear hunting is an opportunity to rekindle friendships while pursuing your sport during a time of year when the woods come alive from winter dormancy. To ensure this experience remains enjoyable, be a safe, responsible hunter. In 1988, careless handling of firearms turned some outdoor excursions into unforgettable tragedies.

Remember, as in many other sports, the negative or thoughtless actions of a few can be detrimental to the whole. The solution to this problem is the production of good hunter ethics.

1. Get to know and adhere to the regulations governing your sport.
2. Don't shoot a female (sow) with cubs.
3. Respect the preparation efforts of other hunters and avoid placing baits or stands too close to existing bait stations. Remember to clean up your baits at the close of the season.
4. When selecting a bait location, choose a spot well into the forest well away from the boundaries marking private land. Avoid locations frequented by other forest users such as hikers and anglers. Baits are often unsightly and offensive. Don't spoil their natural environment experience by turning the forest into a garbage dump.
5. Avoid the use of whole carcasses and place bait in containers such as metal drums. To continue bear baiting in its present form, please control your baits and keep the forest clean.
6. Observe the 10 basic rules of safe gun handling.

Saskatchewan Parks, Recreation and Culture

For more information:
Saskatchewan Parks, Recreation and Culture
Communications Branch
3211 Albert Street,
REGINA, Saskatchewan
S4S 5W6 Telephone: (306) 787-2700

Appendix 7. Saskatchewan 1989 game bird seasons.

Waterfowl Seasons

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Ducks (All Hunters)	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units; and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 11 - Dec. 9	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintail and 2 only may be canvasback)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be mallards, 1 only may be pintail and 1 only may be canvasback) 10 possession (6 only may be mallards, 2 only may be pintail and 2 only may be canvasback)
American Coots and Common Snipe (All Hunters)	Zones 1 to 42, 44 to 47 and 52, including Elbow and Valeport Wildlife Management Units; and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 11 - Dec. 9	10 daily 20 possession
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	10 daily 20 possession
Sandhill Cranes (Sask. Residents and Canadian Residents Only)	Zones 19, 21 to 24, 29, 30, 37 to 42, 44 and 52	Sept. 1 - Sept. 12	5 daily 10 possession
	Zones 11 to 14	Sept. 11 - Sept. 19	5 daily 10 possession
Geese (Sask. Residents Only)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 20 - Dec. 9	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 42, 44 to 47 and 52, including Valeport and starting Sept. 20, Last Mountain Lake Wildlife Management Unit	Sept. 13 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 43, 48 to 51 and 53 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; Fort a la Corne and Horsehide Lake Wildlife Management Units; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
Geese (Canadian Residents and Non-residents)	Zones 1 to 14, 19 and 22 to 29, including Elbow Wildlife Management Unit	Sept. 27 - Dec. 9	5 daily (2 only may be white-fronted geese) 10 possession (4 only may be white-fronted geese)
	Zones 15 to 18, 20, 21, 30 to 52, 54, 56 and 57, including Valeport, Last Mountain Lake, Horsehide Lake and Fort a la Corne Wildlife Management Units	Sept. 27 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
	Zones 53, 55 and 58 to 76, including Clearwater River, Meadow Lake, Nipawin and Lac La Ronge Provincial Parks; and Bronson Forest Recreation Site	Sept. 1 - Dec. 9	5 daily (3 only may be white-fronted geese) 10 possession (6 only may be white-fronted geese)
All Hunters Please Note:	Starting Sept. 27 in Zones 15 to 18, 20 to 22, 30 to 43 and 48 to 76: 3 additional Snow or Ross' geese may be taken daily, and 6 additional Snow or Ross' geese may be kept in possession. Starting Oct. 14 in Zones 1 to 14, 19, 23 to 29 and 44 to 47: 3 additional Snow or Ross' geese may be taken daily, and 6 additional Snow or Ross' geese may be kept in possession.		
Note:	Prior to Oct. 22, in Zones 1 to 59, 67, 68 and 69, any open season for geese includes that portion of the day from one-half hour before sunrise to 12:00 noon local time. From Oct. 23 to Dec. 9, geese may be hunted all day in all open zones.		

Upland Game Bird Seasons

Species	Wildlife Management Zones Open	Season Dates (Inclusive)	Bag Limit
Sharp-tailed Grouse (All Hunters)	Zones 1 to 8, 15 to 24, 29 to 47, including Last Mountain Lake Wildlife Management Unit; and starting Oct. 4, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 4	3 daily 6 possession
	Zones 48 to 76, including Clearwater River, Lac La Ronge, Meadow Lake, and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	3 daily 6 possession
Sharp-tailed Grouse (Sask. Residents and Canadian Residents Only)	Zones 9 to 14 and 25 to 28	Sept. 20 - Nov. 4	3 daily 6 possession
Hungarian Partridge (All Hunters)	Zones 1 to 8, 15 to 19, 22 to 24, 29 and 31; and starting Oct. 4, Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units; and Starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 18	10 daily 20 possession
	Zones 20, 21, 30 and 32 to 41, including Last Mountain Lake Wildlife Management Unit	Sept. 20 - Nov. 18	5 daily 10 possession
	Zones 42 to 55, including Fort a la Corne Wildlife Management Unit	Sept. 20 - Nov. 18	3 daily 6 possession
Hungarian Partridge (Sask. Residents and Canadian Residents Only)	Zones 9 to 14	Sept. 20 - Nov. 18	10 daily 20 possession
	Zones 25 to 28	Sept. 20 - Nov. 29	5 daily 10 possession
Hungarian Partridge (Sask. Residents Only)	Zones 1 to 19, 24 and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units	Dec. 4 - Dec. 20	10 daily 20 possession
Pheasants (Sask. Residents Only May Hunt Cocks Only)	Zones 1 to 36, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Management Units; and starting Oct. 31, Elbow Wildlife Management Unit	Oct. 4 - Nov. 18	3 daily 6 possession
	Zones 1 to 20, 24 and 31, including Estevan-Cambria and Lomond (Lomond No. 3 pasture at Maxim) Wildlife Management Units	Dec. 4 - Dec. 20	3 daily 6 possession
Ruffed Grouse (All Hunters)	Zones 1 to 47, including Last Mountain Lake Wildlife Management Unit; Duck Mountain and Moose Mountain Provincial Parks; and starting Oct. 31, Elbow Wildlife Management Unit	Sept. 20 - Nov. 18	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Greenwater Lake, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks; Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	10 daily 20 possession
Spruce Grouse (All Hunters)	Zone 43	Sept. 20 - Nov. 18	5 daily 10 possession
	Zones 48 to 76, including Clearwater River, Lac La Ronge, Meadow Lake and Nipawin Provincial Parks, Fort a la Corne Wildlife Management Unit; and Bronson Forest Recreation Site	Sept. 6 - Dec. 2	10 daily 20 possession
Ptarmigan (All Hunters)	Zones 61 to 66 and 69 to 76, including Clearwater River and Lac La Ronge Provincial Parks	Nov. 13 - Mar. 31, 1990	10 daily 20 possession

Appendix 8. January 1990 mid-winter waterfowl survey, United States summary.

SPECIES	ATL. FLYWAY	MISS. FLYWAY	CENT. FLYWAY	PAC. FLYWAY	UNITED STATES TOTALS 1990	1989	80-89 AV.	% CHG. 1990 FROM 1989	80-89
MALLARD	185,426	2,586,260	1,297,291	1,515,684	5,584,661	5,331,000	5,237,742	5%	7%
BLACK DUCK	227,339	86,807			314,146	310,100	301,874	1%	4%
MOTTLED DUCK	1,741	111,704	22,300		135,745	90,700	85,780	50%	58%
GADWALL	11,842	1,101,392	136,621	123,926	1,373,781	992,500	888,027	38%	55%
WIGEON	54,252	236,991	32,444	507,867	831,554	773,600	910,606	7%	-9%
G-W TEAL	68,628	639,662	280,257	295,823	1,284,370	1,343,700	1,254,348	-4%	2%
B-W TEAL*	23,457	99,700	1,112	15,883	140,152	150,200	89,437	-7%	57%
CIN. TEAL*									
SHOVELER	8,585	253,341	85,915	403,868	751,709	526,900	608,070	43%	24%
PINTAIL	43,995	650,524	589,250	888,876	2,172,645	1,548,300	2,880,059	40%	-25%
WOOD DUCK	1,071	18,523	405	1,518	21,517	21,900	37,075	-2%	-42%
WHISTLING DUCK	2,092		100		2,192	300	2,267	631%	-3%
SUBTOT. DABBLERS	628,428	5,784,904	2,445,695	3,753,445	12,612,472	11,089,200	12,287,642	14%	3%
REDHEAD	115,416	6,742	193,608	22,877	338,643	462,400	407,565	-27%	-17%
CANVASBACK	114,786	86,926	32,934	54,861	289,507	258,100	292,885	12%	-1%
SCAUP	456,862	350,498	36,683	196,652	1,040,695	1,348,800	1,027,382	-23%	1%
RING-NECKED DUCK	107,579	146,424	41,304	49,301	344,608	496,100	256,643	-31%	34%
GOLDENEYE	44,679	91,280	18,197	32,134	186,290	150,700	147,967	24%	26%
BUFFLEHEAD	66,922	6,967	4,839	49,261	127,989	106,700	101,199	20%	26%
RUDDY DUCK	25,518	8,443	2,720	93,167	129,848	144,000	191,520	-10%	-32%
SUBTOT. DIVERS	931,762	697,280	330,285	498,253	2,457,580	2,966,800	2,425,161	-17%	1%
EIDER	135,484				135,484	53,800	102,575	152%	32%
SCOTER	14,059	115	2	125,597	139,773	122,100	136,421	14%	2%
OLDSQUAW	11,384	979	1	166	12,530	8,100	18,288	55%	-31%
HARLEQUIN	50			15	65	200	103	-68%	-37%
SUBTOT. SEADUCKS	160,977	1,094	3	125,778	287,852	184,200	267,035	56%	8%
MERGANSERS	61,484	78,182	134,070	29,379	303,115	302,000	271,131	0%	12%
UNID. DUCKS	4,442	11,608	438,525	49,576	504,151	148,900	72,853	239%	592%
TOTAL DUCKS	1,787,093	6,573,068	3,348,578	4,456,431	16,165,170	14,691,100	15,333,329	10%	5%
BRANT	135,444			16,147	151,591	158,300	128,402	-4%	18%
SNOW/BLUE GOOSE**	231,242	1,062,982	699,988	572,118	2,566,330	2,628,000	2,317,533	-2%	11%
ROSS' GOOSE**									
WHITE-FR. GOOSE		103,302	90,830	139,776	333,908	321,700	271,372	4%	23%
CANADA GOOSE	736,877	1,850,180	966,809	417,804	3,971,670	3,247,800	2,727,413	22%	46%
TOTAL GEESE	1,103,563	3,016,464	1,757,627	1,145,845	7,023,499	6,355,800	5,444,720	11%	29%
TUNDRA SWAN	89,698	17	3	40,052	129,770	169,300	151,877	-23%	-15%
TRUMPETER SWAN		63	152	861	1,076	1,800	1,511	-40%	-29%
MUTE SWAN	6,741	2,123		7	8,871	7,900	5,288	12%	68%
UNID. SWAN				1,609	1,609	700			
TOTAL SWANS	96,439	2,203	155	42,529	141,326	179,700	158,067	-21%	-11%
COOT	308,614	452,780	273,221	311,833	1,346,448	1,791,100	1,555,199	-25%	-13%
GRAND TOTAL	3,295,709	10,044,515	5,379,581	5,956,638	24,676,443	23,017,700	22,491,314	7%	10%

* - BW AND CINN. TEAL COMBINED

** - SNOW/BLUE AND ROSS' GEESE COMBINED

KG - 03/27/90

Appendix 9a. Saskatchewan duck hunting regulations, 1976-89.

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1976	1-22	Sept. 8 - Dec. 18	8 (1 redhead or canvasback)
	23-37	Sept. 1 - Dec. 11	8 (1 redhead or canvasback)
1977	1-22	Sept. 8 - Dec. 17	6 (1 redhead or canvasback)
	23-37	Sept. 1 - Dec. 10	6 (1 redhead or canvasback)
1978	1-22	Sept. 11 - Dec. 16	6
	23-27	Sept. 1 - Dec. 9	6
1979	1-22	Sept. 10 - Dec. 15	8
	23-37	Sept. 1 - Dec. 8	8
1980	1-22	Sept. 8 - Dec. 13	8
	23-37	Sept. 1 - Dec. 6	8
1981[a]	1-22	Sept. 7 - Dec. 12	8
	23-37	Sept. 1 - Dec. 5	8
1982	1-22	Sept. 8 - Dec. 11	8
	23-37	Sept. 1 - Dec. 4	8
1983	1-22	Sept. 7 - Dec. 10	8
	23-37	Sept. 1 - Dec. 3	8
1984[b]	1-42, 44-47, 52	Sept. 5 - Dec. 8	8
	43, 48-51, 53-76	Sept. 1 - Dec. 8	8
1985	1-42, 44-47, 52	Sept. 11 - Dec. 7	4
	43, 48-51, 53-76	Sept. 2 - Dec. 7	4
1986	1-42, 44-47, 52	Sept. 15 - Dec. 13	6 (4 mallards only)
	43, 48-51, 53-76	Sept. 1 - Dec. 13	6 (4 mallards only)
1987	1-42, 44-47, 52	Sept. 14 - Dec. 12	6 (4 mallards only)
	43, 48-51, 53-76	Sept. 1 - Dec. 12	6 (4 mallards only)
1988	1-42, 44-47, 52	Sept. 12 - Dec. 10	5 (3 mallards)
	43, 48-51, 53-76	Sept. 1 - Dec. 10	5 (3 mallards)
1989	1-42, 44-47, 52	Sept. 11 - Dec. 9	5 daily (3 only may be mallards, 1 may be canvasback and 1 only may be pintail)
	43, 48-51, 53-76	Sept. 1 - Dec. 9	5 daily (3 only may be mallards, 1 may be canvasback and 1 only may be pintail)

[a] All special restrictions lifted from Canadian residents and non-residents.
[b] 76 new wildlife management zones in effect.

Appendix 9b. **Saskatchewan goose hunting regulations, 1981-89 (details omitted concerning local closures, wildlife management units and provincial parks).**

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1981	1-6, 8, 9, 12-15	Sept. 23 - Dec. 12	5 (2 whitefronts)
	7, 10, 11, 16-22	Sept. 16 - Dec. 12	5 (3 whitefronts)
	23-37	Sept. 1 - Dec. 5	5 (3 whitefronts)
	1-25, 28, 30, 32, 33	Sept. 1 - Oct. 20	Morning Hunting Only
	All Zones	On and After Oct. 15	3 Additional White Geese
1982	1-6, 8, 9, 12-15	Sept. 22 - Dec. 11	5 (2 whitefronts)
	7, 10, 11, 16-22	Sept. 15 - Dec. 4	5 (3 whitefronts)
	23-37	Sept. 1 - Dec. 4	5 (3 whitefronts)
	1-25, 28, 30, 32	Sept. 1 - Oct. 20	Morning Hunting Only
	All Zones	On and After Oct. 15	3 Additional White Geese
1983	1-6, 8, 9, 12-15	Sept. 21 - Dec. 10	5 (2 whitefronts)
	7, 10, 11, 16-22	Sept. 14 - Dec. 10	5 (3 whitefronts)
	23-27	Sept. 1 - Dec. 3	5 (3 whitefronts)
	1-25, 28, 30, 32, 33	Sept. 1 - Oct. 20	Morning Hunting Only
	1-37 (All Zones)	On and After Oct. 15	3 Additional White Geese
1984	1-14, 18, 19, 20, 22-29	Sept. 19 - Dec. 8	5 (2 whitefronts)
	15, 16, 17, 21, 30-42, 44-47, 52	Sept. 12 - Dec. 8	5 (3 whitefronts)
	43, 48-51, 53-76	Sept. 1 - Dec. 8	5 (3 whitefronts)
	1-59, 67, 68, 69	Sept. 1 - Oct. 20	Morning Hunting Only
	1-76 (all zones)	On and After Oct. 15	3 Additional Snow or Ross' Geese
1985	1-14, 19, 22-29	Sept. 25 - Dec. 7	5 (2 whitefronts)
	15, 16, 17, 18, 20, 21, 30-42, 44-47, 52	Sept. 18 - Dec. 7	5 (3 whitefronts)
	43, 48-51, 53-76	Sept. 2 - Dec. 7	5 (3 whitefronts)
	1-59, 67, 68, 69	Sept. 2 - Oct. 19	Morning Hunting Only
	1-76 (all zones)	On and After Oct. 15	3 Additional Snow or Ross' Geese
1986	1-14, 19, 22-29	Sept. 24 - Dec. 13	5 (2 whitefronts)
	15-18, 20, 21, 30-42, 44-47, 52	Sept. 17 - Dec. 13	5 (3 whitefronts)
	43, 48-51, 53-76	Sept. 1 - Dec. 13	5 (3 whitefronts)
	1-59, 67-69	Sept. 1 - Oct. 19	Morning Hunting Only
	15-18, 20-22, 30-43, 48-76	Oct. 1 - Dec. 13	3 Additional Snow or Ross' Geese
	1-14, 19, 23-29, 44-47	Oct. 15 - Dec. 13	3 Additional Snow or Ross' Geese
1987	1-14, 19, 22-29	Sept. 21 - Dec. 10	5 (2 whitefronts)
	15-18, 20, 21, 30-42, 44-47, 52	Sept. 14 - Dec. 10	5 (3 whitefronts)
	43, 48-51, 53-76	Sept. 1 - Dec. 10	5 (3 whitefronts)
	1-59, 67-69	Sept. 1 - Oct. 22	Morning Hunting Only
	15-18, 20-22, 30-43, 48-76	Sept. 28 - Dec. 10	3 Additional Snow or Ross' Geese
	1-14, 19, 23-29, 44-47	Oct. 24 - Dec. 10	3 Additional Snow or Ross' Geese
1988	1-14, 19, 22-29	Sept. 21 - Dec. 10	5 (2 whitefronts)
	15-18, 20, 21, 30-42, 44-47, 52	Sept. 14 - Dec. 10	5 (3 whitefronts)
	43, 48-51, 53-76	Sept. 1 - Dec. 10	5 (3 whitefronts)
	1-59, 67-69	Sept. 1 - Oct. 23	Morning Hunting Only
	15-18, 20-22, 30-43, 48-76	Sept. 28 - Dec. 10	3 Additional Snow or Ross' Geese
	1-14, 19, 23-29, 44-47	Oct. 15 - Dec. 10	3 Additional Snow or Ross' Geese
1989	1-14, 19, 22-29	Sept. 20 - Dec. 9	5 (2 whitefronts)
	15-18, 20, 21, 30-42, 44-47, 52	Sept. 13 - Dec. 9	5 (3 whitefronts)
	43, 48-51, 43-76	Sept. 1 - Dec. 9	5 (3 whitefronts)

Appendix 9c. **Saskatchewan sharp-tailed grouse hunting regulations, 1976-89 (details omitted concerning some Wildlife Management Units and Parks).**

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1976[a]	1-6, 8, 18-37	Sept 27 - Nov 13	5
	7, 9-17	Sept 27 - Nov 13	3
1977[a]	1-22 (Moose Mountain Park)	Sept 26 - Nov 19 (Sept 26 - Oct 22)	5
	23-36	Sept 12 - Nov 5	5
	37	Sept 5 - Nov 5	5
1978[a]	1-22 (Moose Mountain Park)	Sept 25 - Nov 11 (Sept 25 - Oct 28)	5
	23-33	Sept 18 - Nov 11	5
	34-37	Sept 4 - Nov 4	5
1979[a]	1-22 (Moose Mountain Park)	Sept 24 - Nov 10 (Sept 24 - Oct 27)	5
	23-33	Sept 17 - Nov 10	5
	34-37	Sept 3 - Nov 3	5
1980[a]	1-33 (Moose Mountain Park)	Sept 22 - Nov 15 (Sept 22 - Oct 25)	5
	34-37	Sept 1 - Nov 29	5
1981[b]	1-33 (Moose Mountain Park)	Sept 21 - Nov 14 (Sept 21 - Oct 24)	5
	34-37	Aug 31 - Dec 5	5
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 7 - Nov 14	5
1982[b]	1, 7, 8 (east Hwy #2)	Oct 4 - Nov 13	5
	9-22		
	2-6, 8 (west Hwy #2)	Oct 13 - Nov 13	5
	23-33	Oct 4 - Nov 27	5
	34-37	Aug 30 - Nov 27	5
1983[c]	1-4, 7-15	Oct 3 - Nov 12	5
	5, 6	Oct 3 - Nov 12	3
	16-22	Sept 26 - Nov 12	5
	23-37	Sept 5 - Dec 3	5
1984[d]	1-8, 15-30	Oct 1 - Nov 10	5
	9-14	Oct 1 - Nov 10	3
	31-47	Sept 24 - Nov 10	5
	48-76	Sept 10 - Dec 1	5
1985[d]	1-47	Sept 30 - Nov 16	3
	48-76	Sept 9 - Nov 30	3
1986[d]	1-47	Sept 22 - Nov 15	3
	48-76	Sept 8 - Nov 29	3
1987[d]	1-19, 23-29, 31-33	Sept 21 - Nov 14	5
	20-22, 30, 34-47	Sept 21 - Nov 14	3
	48-76	Sept 14 - Nov 28	3
1988[d]	1-19, 23-29, 31-33	Sept 21 - Nov 19	5
	20-22, 30, 34-47	Sept 21 - Nov 19	3
	48 - 76	Sept 7 - Dec 3	3
1989[d]	1-47	Sept 20 - Nov 4	3
	48-76	Sept 6 - Dec 2	3

[a]Canadian and non-resident game bird licences not valid for sharp-tailed grouse in Zones 5, 6, 14 and 15.
[b]All special restrictions lifted from Canadian residents; non-residents permitted to hunt sharptails in Zone 5 but not in Zones 6, 14 and 15.
[c]Non-Residents of Canada not permitted to hunt sharptails in Zones 5, 6, 14 and 15.
[d]Non-Residents of Canada may not hunt sharp-tailed grouse in Zone 9 to 14 and 25 to 28.

Appendix 9d. Saskatchewan Hungarian partridge hunting regulations, 1979-89 (details omitted concerning some Wildlife Management Units and Parks).

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1979	1-16	Sept 24 - Nov 10	6
	17-22	Sept 24 - Nov 10	3
1980	1-16	Sept 22 - Nov 15	6
	17-22	Sept 22 - Nov 15	3
1981[a]	1-16	Sept 21 - Nov 14	6
	17-22	Sept 21 - Nov 14	3
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 7 - Nov 14	6
1982[a]	1, 7, 8 (west Hwy #2), 9-16	Sept 27 - Nov 16	5
	2-6, 8 (east Hwy #2)	Oct 13 - Nov 13	5
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 4 - Nov 13	5
	17-22	Sept 27 - Nov 13	3
1983[b]	1-12	Sept 26 - Nov 12	10
	Some W.M.U.'s	Oct 3 - Nov 12	10
	13-22	Sept 26 - Nov 12	5
1984[c]	1-24	Sept 24 - Nov 10	10
	Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s	Oct 1 - Nov 10	10
	25-47	Sept 24 - Nov 10	5
	48-55 (including Fort a la Corne)	Sept 10 - Nov 10	5
1985[c]	1-14, 19	Sept 23 - Nov 16	10
	15-18, 20-26	Sept 23 - Nov 16	5
	Starting Sept 30, also Elbow, Estevan-Cambria, and Lomond #3 W.M.U.'s		
	27-55	Sept 23 - Nov 16	3
1986[c]	1-15, 18, 19, 31	Sept 22 - Nov 15	10
	16, 17, 20-29	Sept 22 - Nov 15	5
	30, 32-55	Sept 22 - Nov 15	3
1987[c]	1-19, 22-24, 29 and 31	Sept 21 - Nov 14	10
	20, 21, 25-28, 30, 32-34	Sept 21 - Nov 14	5
	35-55	Sept 21 - Nov 14	3
1988[c]	1-19, 22-24, 29 and 31	Sept 21 - Nov 19	10
	20, 21, 25-28, 30, 32-41	Sept 21 - Nov 19	5
	42-55	Sept 21 - Nov 19	3
	1-19, 24 and 31	Dec 5 - Dec 21	10
1989[c]	1-19, 22-24, 29 and 31	Sept 20 - Nov 18	10
	20, 21, 25-28, 30, 32-41	Sept 20 - Nov 18	5
	42-55	Sept 20 - Nov 18	3
	1-19, 24, 31	Dec 4 - Dec 20	10

[a]Special restrictions lifted from Canadian residents. Non-residents cannot take huns in Zones 5, 6, 14 and 15.
[b]Non-Residents of Canada not permitted to hunt partridge in Zones 5, 6, 14, and 15.
[c]Non-Residents of Canada may not hunt Hungarian partridge in Zones 9 to 14 and 25 to 28.

Appendix 9e. **Saskatchewan pheasant hunting regulations, 1975-89. NOTE: only Saskatchewan residents may hunt pheasants (cocks only) (details omitted concerning some Wildlife Management Units & Parts).**

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1975	1-6	Oct 6 - Nov 15	4
	7-17	Oct 6 - Nov 15	3
	6	Dec 8 - Dec 27	4
1976	7, 16, 17	Oct 4 - Oct 23	2
	1-6, 8	Oct 4 - Nov 13	5
	9-15	Oct 4 - Nov 13	2
	6	Dec 6 - Jan 1/77	5
1977	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 3 - Nov 19	5
	6	Dec 5 - Dec 31	5
1978	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 2 - Nov 11	5
	6	Dec 4 - Dec 30	5
1979	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 1 - Nov 10	5
	6	Dec 3 - Dec 29	5
1980	1-17 (L. Mtn. Lake & Elbow W.M.U.)	Oct 6 - Nov 15	5
	6	Dec 1 - Jan 3/81	5
1981	1-17 (including Last Mountain Lake, Estevan-Cambria & Lomond #3 W.M.U.'s)	Oct 7 - Nov 14	5
	1-5, 8	Nov 30 - Dec 12	5
	6	Nov 30 - Jan 2/82	5
1982	1-17 (including Last Mountain Lake W.M.U.)	Oct 6 - Nov 13	5
	1-9, 12, 17	Nov 26 - Dec 18	5
1983	1-17 (including Last Mountain Lake W.M.U.)	Oct 5 - Nov 12	5
	1-9, 12, 17	Nov 28 - Dec 17	5
1984	1-36 (includes Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s)	Oct 3 - Nov 10	5
	1-20, 23, 24, 31, 35, 36	Nov 26 - Dec 15	5
1985	1-36 (including Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s)	Oct 2 - Nov 16	3
	1-24, 29, 31, 35, 36	Dec 2 - Dec 21	3
1986[a]	1-36 (including Elbow, Estevan-Cambria and Lomond #3 W.M.U.'s)	Oct 1 - Nov 15	3
1987	1-36	Oct 7 - Nov 14	3
	1-20 and 31	Nov 30 - Dec 19	3
1988	1-36	Oct 5 - Nov 19	3
	1-20, 24 and 31	Dec 5 - Dec 21	3
1989	1-36	Oct 4 - Nov 18	3
	1-20, 24 and 31	Dec 4 - Dec 20	3

[a]Late season cancelled in 1986.

Appendix 9f. Saskatchewan ruffed grouse hunting regulations, 1977-89 (details omitted concerning some Wildlife Management Zones and Parks).

Year	Wildlife Management Zones	Hunting Season Dates	Daily Bag Limit
1977	1-15	Sept 26 - Nov 19	5
	16-22	Sept 26 - Nov 19	5
	23-36	Sept 12 - Dec 10	10
	37	Sept 5 - Dec 10	10
	Moose Mountain Park	Sept 26 - Oct 22	10
1978	1-15	Sept 25 - Nov 11	5
	16-22	Sept 25 - Nov 11	10
	23-37	Sept 4 - Dec 2	10
	Moose Mountain Park	Sept 25 - Oct 28	10
1979	1-15	Sept 24 - Nov 10	5
	16-22	Sept 24 - Nov 10	10
	23-37	Sept 3 - Dec 1	
	Moose Mountain Park	Sept 24 - Oct 27	10
1980	1-22	Sept 22 - Nov 15	5
	23-37	Sept 1 - Dec 6	5
	Moose Mountain Park	Sept 22 - Oct 25	5
1981[a]	1-22	Sept 21 - Nov 14	5
	23-37	Aug 31 - Dec 5	5
	Elbow W.M.U.	Oct 7 - Nov 14	5
	Moose Mountain Park	Sept 21 - Oct 24	5
1982	1-22	Sept 27 - Nov 13	5
	23-33	Sept 13 - Nov 27	5
	34-37	Aug 30 - Nov 27	5
	Elbow W.M.U.	Oct 4 - Nov 13	5
	Moose Mountain Park	Nov 1 - Nov 24	5
	Greenwater Park	Nov 1 - Nov 27	5
1983	1-22	Sept 26 - Nov 12	5
	23-37	Sept 5 - Dec 3	5
	Elbow W.M.U.	Oct 3 - Nov 12	5
	Moose Mountain Park	Oct 31 - Nov 26	5
	Greenwater Park	Oct 24 - Dec 3	5
1984	1-47 (including Moose Mountain Park)	Sept 25- Nov 10	5
	48-76	Sept 10 - Dec 1	5
1985	1-47 (including Moose Mountian Park)	Sept 23 - Nov 16	5
	48-76	Sept 9 - Nov 30	5
1986	1-47 (including Moose Mountain Park)	Sept 22 - Nov 15	5
	48-76	Sept 8 - Nov 29	5
1987	1-47 & Moose Mountain Park	Sept 21 - Nov 14	5
	48-76	Sept 14 - Nov 28	10
1988	1-47 & Moose Mountain Park	Sept 21 - Nov 19	5
	48-76	Sept 7 - Dec 3	10
1989	1-47 & Moose Mountain Park	Sept 20 - Nov 18	5
	48-76	Sept 6 - Dec 2	10

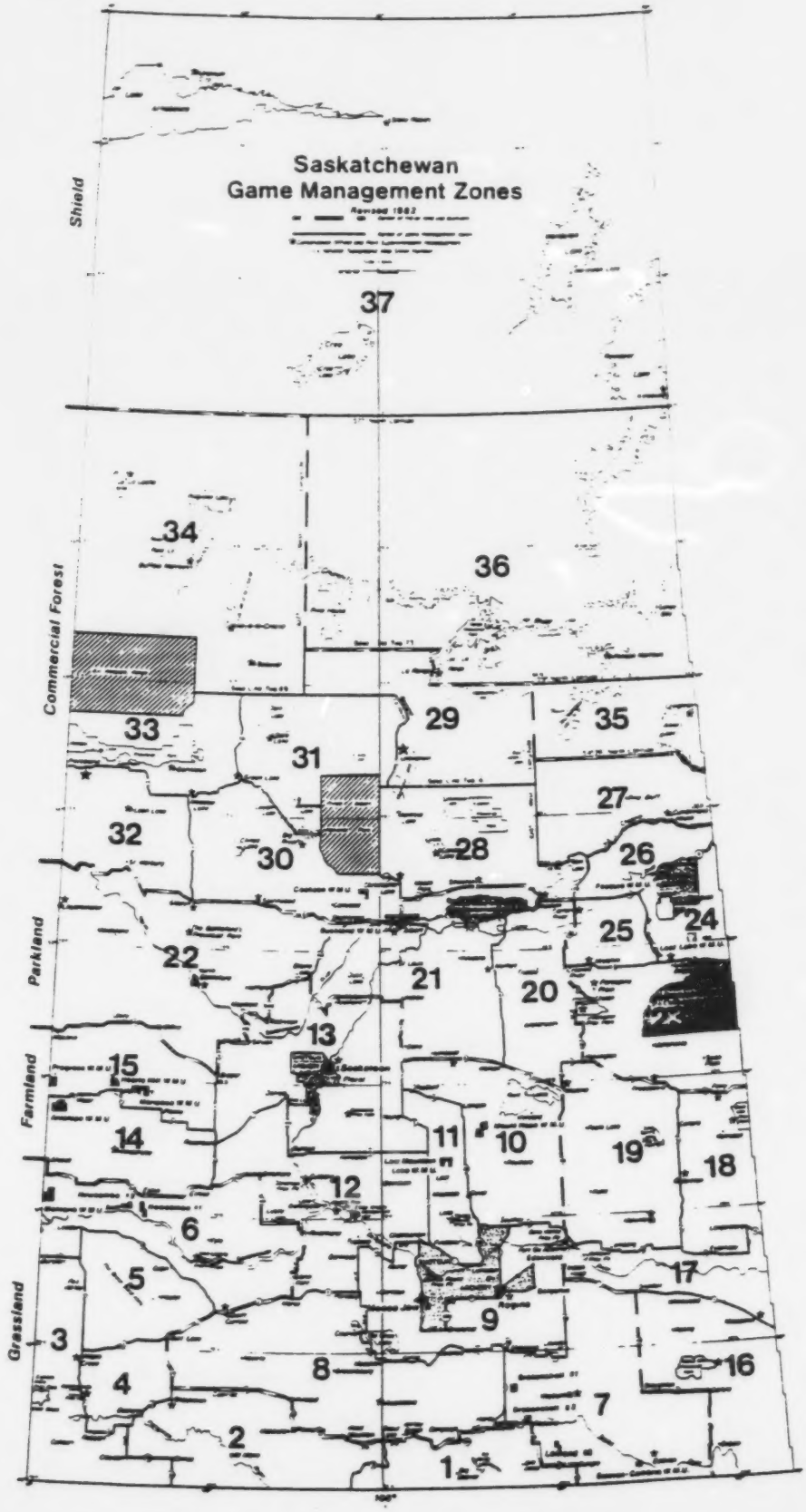
[a]Special restrictions removed for Canadian resident hunters. Non-residents could not take ruffed grouse in Zones 5, 6, 14 and 15.

Appendix 10. Ruffed grouse spring survey data, 1986-89.

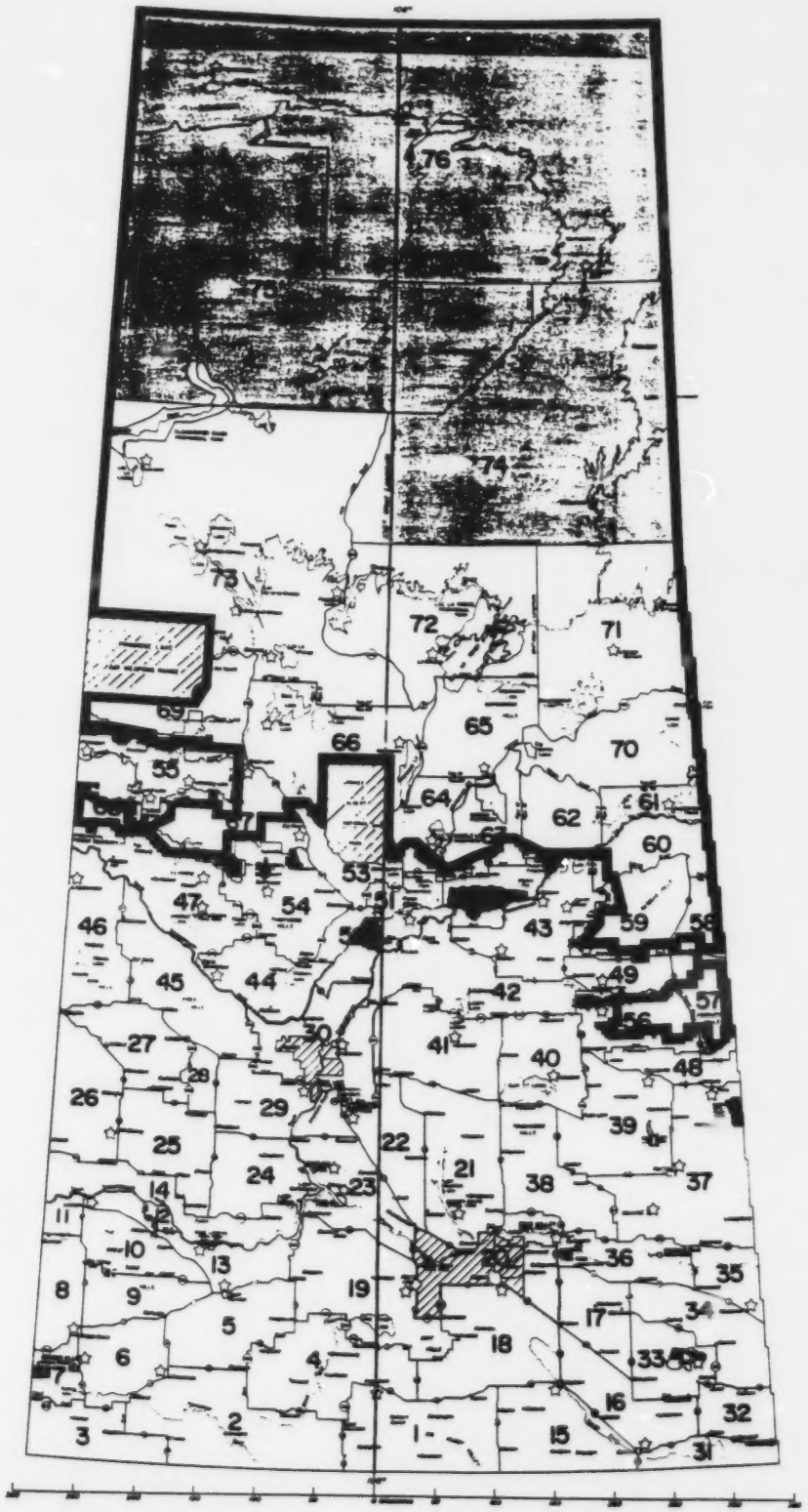
Wildlife Management Zone	Survey Route	No. of Stops	Drums Heard/Survey Stop			
			1986	1987	1988	1989
21	Bulyea	20	1.20	—	1.44	0.60
33	Moose Mountain Park	18	—	0.80	1.33	1.61
37	Duck Mountain Park	20	1.85	1.55	1.80	3.50
38	Bryce Lake	15	0.73	0.60	0.33	0.73
39	Parkerview	20	0.25	0.95	2.00	0.25
43	Blue Jay Tower	12	—	0.60	1.28	2.41
46	Battle River - Freemont	20	0.48	1.33	1.52	0.95
47	Sandwith	15	0.87	0.47	1.53	2.93
PARKLAND			0.88	0.86	1.42	1.72
						Difference [a]: +22%
48	Rockford	14	1.29	–	2.07	0.52
49	Akosane	12	–	0.15	–	0.33
54	Chitek	20	–	0.80	0.20	0.35
55	St. Cyr Lake	22	0.87	1.03	1.00	1.13
FOREST FRINGE			1.09	0.75	1.18	0.63
						Difference: -29%
56	McBride Lake	15	1.00	1.67	1.73	1.20
56	Greenwater	24	0.87	0.33	1.22	0.33
57	Woody Road South	20	1.88	1.48	3.35	0.85
59	Fir River Road	20	1.10	–	1.25	1.40
60	Squaw Rapids East	20	0.72	1.28	0.85	0.60
63	Torch River	15	–	1.20	0.93	0.80
53 and 66	Tote Road	20	3.55	3.20	1.70	2.60
68	Railroad Grade	20	1.45	0.65	0.80	0.65
66 and 69	Green Lake North	17	–	1.45	1.40	2.11
69	Mistohay	20	2.80	1.05	0.60	0.75
FOREST			1.61	1.35	1.39	1.14
						Difference: -21%
PROVINCE	24 survey routes		1.27	1.01	1.34	1.20
						Difference: -10%

[a]Percent difference in 1989 ruffed grouse drums compared to 1987; based on comparable survey routes.

Appendix 11. Saskatchewan game management zones, 1975-83.



Appendix 12. Saskatchewan wildlife management zones, 1984-89.

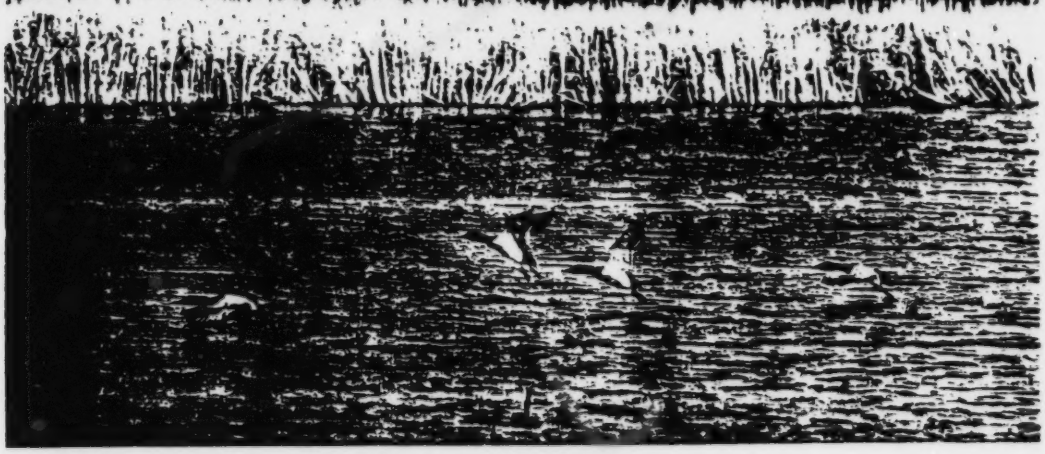


Appendix 13. 1989 Saskatchewan game bird hunter survey questionnaire.

Saskatchewan Parks, Recreation and Culture

Hon. Colin Maxwell
Minister

1989 Saskatchewan Game Bird Hunter Survey



A Message from the Director of Wildlife

Dear Sporthunter:

As one of Saskatchewan's 36,000 game bird hunters in 1988, you have been randomly selected to receive the **1989 Game Bird Hunter Survey.** The **tally card** sent to you near the start of the game bird seasons told of your selection for this survey and was meant for your use in recording your hunting activity.

This survey is important to future game bird hunting in Saskatchewan. In view of dwindling habitat and variable weather conditions, your hunting activity and harvest results form an integral part of game bird management in this province.

The survey provides important harvest and hunting pressure information for each Wildlife Management Zone. We use your replies, along with spring breeding surveys and reproduction information from wing samples submitted by hunters, to set responsible bird quotas and season dates. **Even if you did not hunt game birds in 1989,** please remember to answer the first question and return the questionnaire as this information is still important in assembling changes in hunter activity from year to year.

Because hunters' names for the survey are selected randomly from last year's licence sales, you may receive a questionnaire two or more years in a row. Normally we select approximately 50% of the previous year's hunters in our sample. We require such a high sample number because only about 20% of the sampled hunters return their questionnaire.

Please take a few minutes after you have completed your 1989 bird hunting to record your activity; then mail the survey back to us as soon as possible in the enclosed postage paid envelope. You should find the **tally card,** sent to you previously, quite helpful in remembering dates hunted and your harvest.

Your help in filling out the Game Bird Hunter Survey is appreciated. By doing so, you contribute to better wildlife management in Saskatchewan.

I sincerely hope your 1989 hunting season is safe and successful.

Dennis Sherratt
Director
Wildlife Branch
Saskatchewan Parks, Recreation and Culture

Appendix 13. (con't).

1989 Saskatchewan Game Bird Hunter Survey

1. **If you did not purchase a 1989 Saskatchewan Game Bird Licence please check ☑ here ☐ and return this survey immediately, thank you.**

2. Check ☑ each hunting licence you purchased in 1989, **even if you were unsuccessful or did not hunt.**
   Saskatchewan Game Bird Licence ☐ Migratory Game Bird Permit ☐

3. **Please record all your hunting activities, whether or not you bagged any birds.**
   - ***Use a separate line for each date you hunted;*** **if you hunted in more than one zone on the same day, use a separate line for each zone. (See example below).**
   - Record the amount of time you hunted as follows:
     (4 or more hours = 1 day Less than 4 hours = ½ day)
   - Record only the number of birds **you** bagged and retrieved.
   - Check ☑ any bird species you hunted but did not bag.
   - See examples.

4. **Please mail no later than January 5, 1990.**

					Upland Birds						Migratory Birds								
											Ducks			Geese					
	Date	Wildlife Mgmt Zone	Time Hunted		Sharp-tailed Grouse	Hungarian Partridge	Ruffed Grouse	Spruce Grouse	Pheasant	Ptarmigan	Male/Drake Mallards	Female/Hen Mallards	Other Ducks	Canadas	White-fronts	Snows & Blues	Ross'	Sandhill Cranes
			1 Day	½ Day														
EXAMPLES	Oct. 7	5		✓	✓	2			1									
	Oct. 7	19		✓	1	✓					1	1	✓					
	Oct. 22	40	✓								2	✓	1	1	2	1		
	Nov. 5	55		✓			2	✓										

C 0309

Thank you for your contribution to game bird management in Saskatchewan.

Appendix 13. (con't).

1988 Game Bird Hunting Activity

Waterfowl (duck and goose) hunter days of recreation decreased by 23% from 1987 with an estimated 21,500 active hunters, 51% below the 15 year average. Duck hunters harvested 72,200 birds, down 47% from the 136,000 birds taken in 1987 and 74% below the 1979-87 average of 273,500 ducks. Mallard harvest, Saskatchewan's most important game duck, followed a similar trend by declining 49% from 101,200 in 1987 to 51,400 in 1988.

Goose hunters bagged 138,900 geese in 1988, an increase of 4% when compared to 133,100 in 1987 but 16% below the 10 year average. Canada geese (82,200) comprised 59% of the harvest followed by white-fronted (29,500), lesser snow (24,300) and Ross' (2,900) geese each contributing 21%, 18% and 2%, respectively.

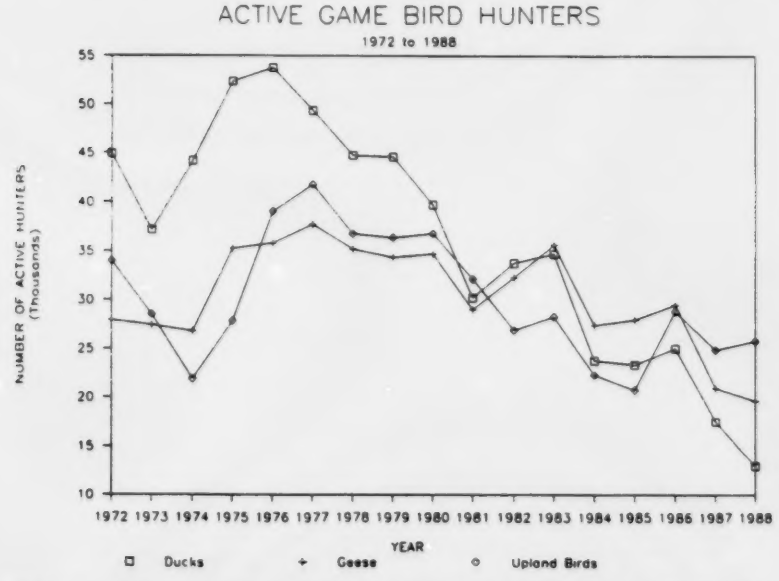
Sandhill crane harvest in Saskatchewan is traditionally small. In 1988, 5,200 cranes were taken, an increase of 9% from 1987 and up 12% from the 9 year average.

Active upland game bird hunters increased 4% from 24,900 hunters in 1987 to 25,800 in 1988. However, recreation days declined 13% from 83,200 days in 1987 to 72,100 in 1988 due to poor bird reproduction, but still remain 12% above the 1973-87 average. Approximately 90% of the successful upland game bird hunters harvested an average of 11 upland birds throughout the 1988 season.

The harvest of ruffed grouse in 1988 surpassed all other upland game species. Eighty-seven thousand (87,000) ruffies were taken followed by Hungarian partridge (78,600), sharp-tailed grouse (51,700), spruce grouse (15,300) and pheasants (11,200).

Saskatchewan residents purchased 31,500 game bird licences in 1988, down 8% from 1987 and 36% below the 1966-87 average. Both out-of-province Canadian (1,600) and non-residents of Canada (3,100) licence purchases were down approximately 20% in 1988.

In summary, extreme temperatures and drought conditions in southern Saskatchewan affected duck and upland game bird reproduction which, in turn, impacted hunter success. Geese and ruffed grouse were the feature species for waterfowl and upland game bird hunters in 1988.



More detailed information concerning game bird management can be obtained from Wildlife Branch, Saskatchewan Parks, Recreation and Culture, 3211 Albert Street, Regina, Saskatchewan S4S 5W6 or your local Parks, Recreation and Culture office.

Appendix 13. (cont'd).

HUNTERS: This page is yours to keep.

Please tear off this section before mailing back the questionnaire in the enclosed, postage-paid envelope.

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

[4] Labour Day

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

[9] Thanksgiving Day

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

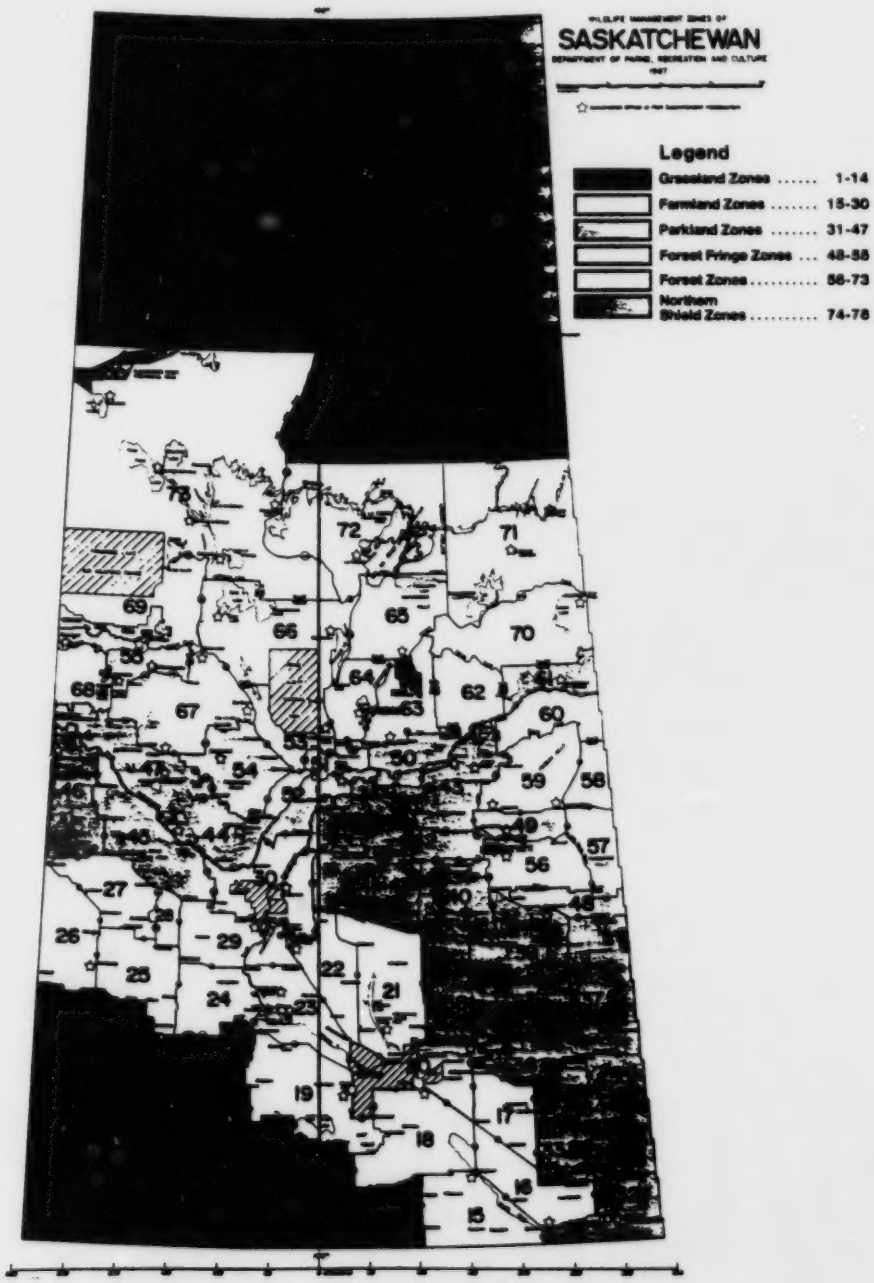
[11] Remembrance Day

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

[25] Christmas Day

[26] Boxing Day



A summary of last year's hunting statistics are on the reverse side, for your information.